SiEN39-302

# Service Manual

VRV II

## R-410A Heat Pump 50Hz

# VRV II R410A Heat Pump 50Hz

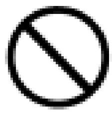
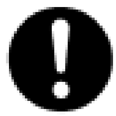
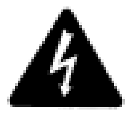
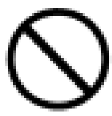
# 1. Introduction

## 1.1 Safety Cautions

**Cautions and Warnings**

- Be sure to read the following safety cautions before conducting repair work.
- The caution items are classified into “ **Warning**” and “ **Caution**”. The “ **Warning**” items are especially important since they can lead to death or serious injury if they are not followed closely. The “ **Caution**” items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.
- About the pictograms
  - △ This symbol indicates an item for which caution must be exercised.
    The pictogram shows the item to which attention must be paid.
  - ○ This symbol indicates a prohibited action.
    The prohibited item or action is shown inside or near the symbol.
  - ● This symbol indicates an action that must be taken, or an instruction.
    The instruction is shown inside or near the symbol.
- After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates normally, and explain the cautions for operating the product to the customer

### 1.1.1 Caution in Repair

| **Warning** | |
|---|---|
| Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair.<br>Working on the equipment that is connected to a power supply can cause an electrical shook.<br>If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment. |  |
| If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas.<br>The refrigerant gas can cause frostbite. |  |
| When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first.<br>If there is a gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury. | |
| If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames. |  |
| The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit.<br>Be sure to discharge the capacitor completely before conducting repair work.<br>A charged capacitor can cause an electrical shock. |  |
| Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug.<br>Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire. |  |

| Caution | |
|---|---|
| Do not repair the electrical components with wet hands.<br>Working on the equipment with wet hands can cause an electrical shock. | |
| Do not clean the air conditioner by splashing water.<br>Washing the unit with water can cause an electrical shock. | |
| Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shocks. | |
| Be sure to turn off the power switch and unplug the power cable when cleaning the equipment.<br>The internal fan rotates at a high speed, and cause injury. | |
| Do not tilt the unit when removing it.<br>The water inside the unit can spill and wet the furniture and floor. | |
| Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work.<br>Working on the unit when the refrigerating cycle section is hot can cause burns. | |
| Use the welder in a well-ventilated place.<br>Using the welder in an enclosed room can cause oxygen deficiency. | |

## 1.1.2 Cautions Regarding Products after Repair

| Warning | |
|---|---|
| Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment.<br>The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire. | |
| When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment.<br>If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury. | |
| Be sure to install the product correctly by using the provided standard installation frame.<br>Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury. | For integral units only |
| Be sure to install the product securely in the installation frame mounted on a window frame.<br>If the unit is not securely mounted, it can fall and cause injury. | For integral units only |
| Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work.<br>Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire. | |

| Warning | |
|---|---|
| Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals.<br>Improper connections can cause excessive heat generation or fire. | |
| When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable.<br>If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire. | |
| Do not damage or modify the power cable.<br>Damaged or modified power cable can cause an electrical shock or fire.<br>Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable. | |
| Do not mix air or gas other than the specified refrigerant (R410A) in the refrigerant system.<br>If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury. | |
| If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak.<br>If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges. | |
| When replacing the coin battery in the Remote Control, be sure to disposed of the old battery to prevent children from swallowing it.<br>If a child swallows the coin battery, see a doctor immediately. | |

| Caution | |
|---|---|
| Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks. | |
| Do not install the equipment in a place where there is a possibility of combustible gas leaks.<br>If a combustible gas leaks and remains around the unit, it can cause a fire. | |
| Be sure to install the packing and seal on the installation frame properly.<br>If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor. | For integral units only |

## 1.1.3 Inspection after Repair

| Warning | |
|---|---|
| Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way.<br>If the plug has dust or loose connection, it can cause an electrical shock or fire. | |
| If the power cable and lead wires have scratches or deteriorated, be sure to replace them.<br>Damaged cable and wires can cause an electrical shock, excessive heat generation or fire. | |
| Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it can cause an electrical shock, excessive heat generation or fire. | |

| Caution | |
|---|---|
| Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure.<br>Improper installation and connections can cause excessive heat generation, fire or an electrical shock. | |
| If the installation platform or frame has corroded, replace it.<br>Corroded installation platform or frame can cause the unit to fall, resulting in injury. | |
| Check the grounding, and repair it if the equipment is not properly grounded.<br>Improper grounding can cause an electrical shock. | |
| Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 Mohm or higher.<br>Faulty insulation can cause an electrical shock. | |
| Be sure to check the drainage of the indoor unit after the repair.<br>Faulty drainage can cause the water to enter the room and wet the furniture and floor. | |

## 1.1.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

## 1.1.5 Using Icons List

| Icon | Type of Information | Description |
|---|---|---|
| Note: | Note | A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks. |
| Caution | Caution | A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure. |
| Warning | Warning | A “warning” is used when there is danger of personal injury. |
| | Reference | A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic. |

## 1.2 PREFACE

Thank you for your continued patronage of Daikin products.

This is the new service manual for Daikin's Year 2003 VRVII series Heat Pump System.
Daikin offers a wide range of models to respond to building and office air conditioning needs.
We are confident that customers will be able to find the models that best suit their needs.

This service manual contains information regarding the servicing of VRVII series Heat Pump System.

April. 2003

After Sales Service Division

# Part 1
# General Information

# 1. Model Names of Indoor/Outdoor Units

## Indoor Units

| Type | | Model Name | | | | | | | | | | | Power Supply |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ceiling mounted cassette type (Double flow) | FXCQ | 20M | 25M | 32M | 40M | 50M | 63M | 80M | — | 125M | — | — | VE |
| Ceiling mounted cassette type (Multi flow) 600x600 | FXZQ | 20M | 25M | 32M | 40M | 50M | — | — | — | — | — | — | |
| Ceiling mounted cassette type (Multi flow) | FXFQ | — | 25M | 32M | 40M | 50M | 63M | 80M | 100M | 125M | — | — | |
| Ceiling mounted cassette corner | FXKQ | — | 25M | 32M | 40M | — | 63M | — | — | — | — | — | |
| Ceiling mounted built-in type | FXSQ | 20M | 25M | 32M | 40M | 50M | 63M | 80M | 100M | 125M | — | — | |
| Ceiling mounted duct type | FXMQ | — | — | — | 40M | 50M | 63M | 80M | 100M | 125M | 200M | 250M | |
| Ceiling suspended type | FXHQ | — | — | 32M | — | — | 63M | — | 100M | — | — | — | |
| Wall mounted type | FXAQ | 20M | 25M | 32M | 40M | 50M | 63M | — | — | — | — | — | |
| Floor standing type | FXLQ | 20M | 25M | 32M | 40M | 50M | 63M | — | — | — | — | — | |
| Concealed Floor standing type | FXNQ | 20M | 25M | 32M | 40M | 50M | 63M | — | — | — | — | — | |

## Outdoor Units (Inverter Series)

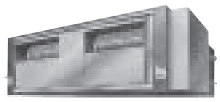
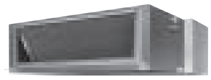
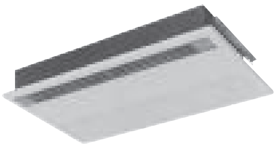
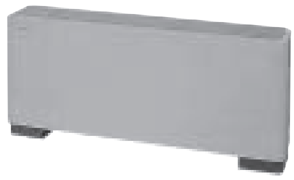
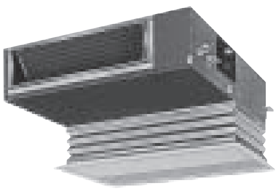
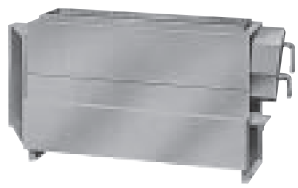
| Series | | Model Name | | | | | | | | | | | | Power Supply |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inverter | Heat Pump | RXYQ | 5M | 8M | 10M | 12M | 14M | 16M | 18M | 20M | 22M | 24M | 26M | Y1B |

| Series | | Model Name | | | | | | | | | | | | Power Supply |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inverter | Heat Pump | RXYQ | 28M | 30M | 32M | 34M | 36M | 38M | 40M | 42M | 44M | 46M | 48M | Y1B |

VE: 1ϕ, 220~240V, 50Hz, 1ϕ, 220V, 60Hz
Y1B: 3ϕ, 380~415V, 50Hz

# 2. External Appearance

## 2.1 Indoor Units

| | |
|---|---|
| Ceiling mounted cassette type (Double flow)<br>FXCQ20M<br>FXCQ25M<br>FXCQ32M<br>FXCQ40M<br>FXCQ50M<br>FXCQ63M<br>FXCQ80M<br>FXCQ125M<br> | Ceiling mounted duct type<br>FXMQ40M<br>FXMQ50M<br>FXMQ63M<br>FXMQ80M<br>FXMQ100M<br>FXMQ125M<br>FXMQ200M<br>FXMQ250M<br><br>FXMQ40~125M<br><br>FXMQ200 · 250M |
| Ceiling mounted cassette type<br>(Multi flow) 600x600<br>FXZQ20M<br>FXZQ25M<br>FXZQ32M<br>FXZQ40M<br>FXZQ50M<br> | Ceiling suspended type<br>FXHQ32M<br>FXHQ63M<br>FXHQ100M<br> |
| Ceiling mounted cassette type (Multi flow)<br>FXFQ25M<br>FXFQ32M<br>FXFQ40M<br>FXFQ50M<br>FXFQ63M<br>FXFQ80M<br>FXFQ100M<br>FXFQ125M<br> | Wall mounted type<br>FXAQ20M<br>FXAQ25M<br>FXAQ32M<br>FXAQ40M<br>FXAQ50M<br>FXAQ63M<br> |
| Ceiling mounted cassette corner type<br>FXKQ25M<br>FXKQ32M<br>FXKQ40M<br>FXKQ63M<br> | Floor standing type<br>FXLQ20M<br>FXLQ25M<br>FXLQ32M<br>FXLQ40M<br>FXLQ50M<br>FXLQ63M<br> |
| Ceiling mounted built-in type<br>FXSQ20M<br>FXSQ25M<br>FXSQ32M<br>FXSQ40M<br>FXSQ50M<br>FXSQ63M<br>FXSQ80M<br>FXSQ100M<br>FXSQ125M<br> | Concealed floor standing type<br>FXNQ20M<br>FXNQ25M<br>FXNQ32M<br>FXNQ40M<br>FXNQ50M<br>FXNQ63M<br> |

# 2.2 Outdoor Units

RXYQ5M



5HP

RXYQ8M,10M



8,10HP

RXYQ12M,14M,16M



12,14,16HP

RXYQ18M, 20M



18, 20HP

RXYQ22M, 24M, 26M



22, 24, 26HP

RXYQ28M, 30M, 32M



28, 30, 32HP

RXYQ34M, 36M



34, 36HP

RXYQ38M, 40M, 42M



38, 40, 42HP

RXYQ44M, 46M, 48M



44, 46, 48HP

# 3. Combination of Outdoor Units

| System Capacity | Number of units | Module | | | | | |
|---|---|---|---|---|---|---|---|
| | | 5 | 8 | 10 | 12 | 14 | 16 |
| 5HP | 1 | ● | | | | | |
| 8HP | 1 | | ● | | | | |
| 10HP | 1 | | | ● | | | |
| 12HP | 1 | | | | ● | | |
| 14HP | 1 | | | | | ● | |
| 16HP | 1 | | | | | | ● |
| 18HP | 2 | | ● | ● | | | |
| 20HP | 2 | | | ● ● | | | |
| 22HP | 2 | | | ● | ● | | |
| 24HP | 2 | | | ● | | ● | |
| 26HP | 2 | | | ● | | | ● |
| 28HP | 2 | | | | ● | | ● |
| 30HP | 2 | | | | | ● | ● |
| 32HP | 2 | | | | | | ● ● |
| 34HP | 3 | | | ● ● | | ● | |
| 36HP | 3 | | | ● ● | | | ● |
| 38HP | 3 | | | ● | ● | | ● |
| 40HP | 3 | | | ● | | ● | ● |
| 42HP | 3 | | | ● | | | ● ● |
| 44HP | 3 | | | | ● | | ● ● |
| 46HP | 3 | | | | | ● | ● ● |
| 48HP | 3 | | | | | | ● ● ● |

★18~48HP are realized by combining 8, 10, 12, 14 and 16HP.

# 4. Model Selection

## VRV II Heat Pump Series

### Connectable indoor units number and capacity

| HP | 5HP | 8HP | 10HP | 12HP | 14HP | 16HP |
|---|---|---|---|---|---|---|
| System name | RXYQ5M | RXYQ8M | RXYQ10M | RXYQ12M | RXYQ14M | RXYQ16M |
| Outdoor unit 1 | RXYQ5M | RXYQ8M | RXYQ10M | RXYQ12M | RXYQ14M | RXYQ16M |
| Outdoor unit 2 | – | – | – | – | – | – |
| Outdoor unit 3 | – | – | – | – | – | – |
| Total number of connectable indoor units | 8 | 13 | 16 | 19 | 20 | 20 |
| Total capacity of connectable indoor units (kW) | 7.0~18.2 | 11.2~29.1 | 14.0~36.4 | 16.8~43.6 | 20.0~52.0 | 22.5~58.5 |

| HP | 18HP | 20HP | 22HP | 24HP | 26HP | 28HP |
|---|---|---|---|---|---|---|
| System name | RXYQ18M | RXYQ20M | RXYQ22M | RXYQ24M | RXYQ26M | RXYQ28M |
| Outdoor unit 1 | RXYQ8M | RXYQ10M | RXYQ10M | RXYQ10M | RXYQ10M | RXYQ12M |
| Outdoor unit 2 | RXYQ10M | RXYQ10M | RXYQ12M | RXYQ14M | RXYQ16M | RXYQ16M |
| Outdoor unit 3 | – | – | – | – | – | – |
| Total number of connectable indoor units | 20 | 20 | 22 | 32 | 32 | 32 |
| Total capacity of connectable indoor units (kW) | 25.2~65.5 | 28.0~72.8 | 30.8~80.0 | 34.0~88.4 | 36.5~94.9 | 39.3~102.1 |

| HP | 30HP | 32HP | 34HP | 36HP | 38HP | 40HP |
|---|---|---|---|---|---|---|
| System name | RXYQ30M | RXYQ32M | RXYQ34M | RXYQ36M | RXYQ38M | RXYQ40M |
| Outdoor unit 1 | RXYQ14M | RXYQ16M | RXYQ10M | RXYQ10M | RXYQ10M | RXYQ10M |
| Outdoor unit 2 | RXYQ16M | RXYQ16M | RXYQ10M | RXYQ10M | RXYQ12M | RXYQ14M |
| Outdoor unit 3 | – | – | RXYQ14M | RXYQ16M | RXYQ16M | RXYQ16M |
| Total number of connectable indoor units | 32 | 32 | 34 | 36 | 38 | 40 |
| Total capacity of connectable indoor units (kW) | 42.5~110.5 | 45.0~117.0 | 48.0~124.8 | 50.5~131.3 | 53.3~138.5 | 56.5~146.9 |

| HP | 42HP | 44HP | 46HP | 48HP |
|---|---|---|---|---|
| System name | RXYQ42M | RXYQ44M | RXYQ46M | RXYQ48M |
| Outdoor unit 1 | RXYQ10M | RXYQ12M | RXYQ14M | RXYQ16M |
| Outdoor unit 2 | RXYQ16M | RXYQ16M | RXYQ16M | RXYQ16M |
| Outdoor unit 3 | RXYQ16M | RXYQ16M | RXYQ16M | RXYQ16M |
| Total number of connectable indoor units | 40 | 40 | 40 | 40 |
| Total capacity of connectable indoor units (kW) | 59.0~153.4 | 61.8~160.6 | 65.0~169.0 | 67.5~175.5 |

## Connectable indoor unit

| Type | | Model Name | | | | | | | | | | | Power Supply |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ceiling mounted cassette type (Double flow) | FXCQ | 20M | 25M | 32M | 40M | 50M | 63M | 80M | — | 125M | — | — | VE |
| Ceiling mounted cassette type (Multi flow) 600x600 | FXZQ | 20M | 25M | 32M | 40M | 50M | — | — | — | — | — | — | |
| Ceiling mounted cassette type (Multi flow) | FXFQ | — | 25M | 32M | 40M | 50M | 63M | 80M | 100M | 125M | — | — | |
| Ceiling mounted cassette corner | FXKQ | — | 25M | 32M | 40M | — | 63M | — | — | — | — | — | |
| Ceiling mounted built-in type | FXSQ | 20M | 25M | 32M | 40M | 50M | 63M | 80M | 100M | 125M | — | — | |
| Ceiling mounted duct type | FXMQ | — | — | — | 40M | 50M | 63M | 80M | 100M | 125M | 200M | 250M | |
| Ceiling suspended type | FXHQ | — | — | 32M | — | — | 63M | — | 100M | — | — | — | |
| Wall mounted type | FXAQ | 20M | 25M | 32M | 40M | 50M | 63M | — | — | — | — | — | |
| Floor standing type | FXLQ | 20M | 25M | 32M | 40M | 50M | 63M | — | — | — | — | — | |
| Concealed Floor standing type | FXNQ | 20M | 25M | 32M | 40M | 50M | 63M | — | — | — | — | — | |

## Indoor unit capacity

| New refrigerant model code | P20 type | P25 type | P32 type | P40 type | P50 type | P63 type | P80 type | P100 type | P125 type | P200 type | P250 type |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Selecting model capacity | 2.2 kW | 2.8 kW | 3.5 kW | 4.5 kW | 5.6 kW | 7.0 kW | 9.0 kW | 11.2 kW | 14.0 kW | 22.4 kW | 28.0 kW |
| Equivalent output | 0.8HP | 1HP | 1.25HP | 1.6HP | 2.0HP | 2.5HP | 3.2HP | 4HP | 5HP | 8HP | 10HP |

Use the above tables to determine the capacities of indoor units to be connected. Make sure the total capacity of indoor units connected to each outdoor unit is within the specified value (kW).

- The total capacity of connected indoor units must be within a range of 50 to 130% of the rated capacity of the outdoor unit.
- In some models, it is not possible to connect the maximum number of connectable indoor units. Select models so the total capacity of connected indoor units conforms to the specification.

# Part 2
# Specifications

# 1. Specifications

## 1.1 Outdoor Units

| Model Name | | | RXYQ5MY1B | RXYQ8MY1B |
|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal / h | 12,500 | 20,000 |
| | | Btu / h | 49,500 | 78,900 |
| | | kW | 14.5 | 23.1 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 14.0 | 22.4 |
| ★3 Heating Capacity | | kcal / h | 13,800 | 21,500 |
| | | Btu / h | 54,600 | 85,400 |
| | | kW | 16.0 | 25.0 |
| Casing Color | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | mm | 1600×635×765 | 1600×930×765 |
| Heat Exchanger | | | Cross Fin Coil | Cross Fin Coil |
| Comp. | Type | | Hermetically Sealed Scroll Type | Hermetically Sealed Scroll Type |
| | Displacement | $m^3/h$ | 13.72 | 13.72+10.47 |
| | Number of Revolutions | r.p.m | 6480 | 6480, 2900 |
| | Motor Output×Number of Units | kW | 3.2×1 | (1.2+4.5)×1 |
| | Starting Method | | Soft start | Soft start |
| Fan | Type | | Propeller Fan | Propeller Fan |
| | Motor Output | kW | 0.35×1 | 0.75×1 |
| | Air Flow Rate | $m^3/min$ | 75 | 175 |
| | Drive | | Direct Drive | Direct Drive |
| Connecting Pipes | Liquid Pipe | mm | ϕ9.5 (Flare Connection) | ϕ9.5 (Flare Connection) |
| | Gas Pipe | mm | ϕ15.9 (Flare Connection) | ϕ19.1 (Brazing Connection) |
| | Oil Equalizing Pipe | mm | — | — |
| Machine Weight | | kg | 160 | 230 |
| Safety Devices | | | High Pressure Switch, Fan Driver Overload Protector, Inverter Overload Protector, Fusible Plugs | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs |
| Defrost Method | | | Deicer | Deicer |
| Capacity Control | | % | 24~100 | 14~100 |
| Refrigerant | Refrigerant Name | | R410A | R410A |
| | Charge | kg | 5.6 | 8.6 |
| | Control | | Electronic Expansion Valve | Electronic Expansion Valve |
| Refrigerator Oil | | | Synthetic (ether) oil | Synthetic (ether) oil |
| | Charge Volume | L | 1.2 | 1.9+1.6 |
| Standard Accessories | | | Installation Manual, Operation Manual, Connection Pipes, Clamps | Installation Manual, Operation Manual, Connection Pipes, Clamps |
| Drawing No. | | | 4D038964A | 4D038965A |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

| Model Name | | | RXYQ10MY1B | RXYQ12MY1B |
|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal / h | 25,000 | 30,000 |
| | | Btu / h | 98,700 | 118,000 |
| | | kW | 28.9 | 34.6 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 28.0 | 33.5 |
| ★3 Heating Capacity | | kcal / h | 27,000 | 32,300 |
| | | Btu / h | 108,000 | 128,000 |
| | | kW | 31.5 | 37.5 |
| Casing Color | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | mm | 1600×930×765 | 1600×1240×765 |
| Heat Exchanger | | | Cross Fin Coil | Cross Fin Coil |
| Comp. | Type | | Hermetically Sealed Scroll Type | Hermetically Sealed Scroll Type |
| | Displacement | $m^3/h$ | 13.72+10.47 | 13.72+10.47 |
| | Number of Revolutions | r.p.m | 6480, 2900 | 6480, 2900 |
| | Motor Output×Number of Units | kW | (2.7+4.5)×1 | (4.2+4.5)×1 |
| | Starting Method | | Soft start | Soft start |
| Fan | Type | | Propeller Fan | Propeller Fan |
| | Motor Output | kW | 0.75×1 | 0.75×1 |
| | Air Flow Rate | $m^3/min$ | 180 | 210 |
| | Drive | | Direct Drive | Direct Drive |
| Connecting Pipes | Liquid Pipe | mm | φ9.5 (Flare Connection) | φ12.7 (Flare Connection) |
| | Gas Pipe | mm | φ22.2 (Brazing Connection) | φ28.6 (Brazing Connection) |
| | Oil Equalizing Pipe | mm | — | — |
| Machine Weight | | kg | 230 | 281 |
| Safety Devices | | | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs |
| Defrost Method | | | Deicer | Deicer |
| Capacity Control | | % | 14~100 | 14~100 |
| Refrigerant | Refrigerant Name | | R410A | R410A |
| | Charge | kg | 9.6 | 11.4 |
| | Control | | Electronic Expansion Valve | Electronic Expansion Valve |
| Refrigerator Oil | | | Synthetic (ether) oil | Synthetic (ether) oil |
| | Charge Volume | L | 1.9+1.6 | 1.9+1.6 |
| Standard Accessories | | | Installation Manual, Operation Manual, Connection Pipes, Clamps | Installation Manual, Operation Manual, Connection Pipes, Clamps |
| Drawing No. | | | 4D038966A | 4D038967A |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

| Model Name | | | RXYQ14MY1B | RXYQ16MY1B |
|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal / h | 35,500 | 40,000 |
| | | Btu / h | 141,000 | 157,000 |
| | | kW | 41.3 | 45.9 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 40.0 | 44.5 |
| ★3 Heating Capacity | | kcal / h | 38,700 | 43,000 |
| | | Btu / h | 154,000 | 171,000 |
| | | kW | 45.0 | 50.0 |
| Casing Color | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | mm | 1600×1240×765 | 1600×1240×765 |
| Heat Exchanger | | | Cross Fin Coil | Cross Fin Coil |
| Comp. | Type | | Hermetically Sealed Scroll Type | Hermetically Sealed Scroll Type |
| | Displacement | $m^3$/h | 13.72+10.47+10.47 | 13.72+10.47+10.47 |
| | Number of Revolutions | r.p.m | 6480, 2900×2 | 6480, 2900×2 |
| | Motor Output×Number of Units | kW | (2.0+4.5+4.5)×1 | (3.0+4.5+4.5)×1 |
| | Starting Method | | Soft start | Soft start |
| Fan | Type | | Propeller Fan | Propeller Fan |
| | Motor Output | kW | 0.75×1 | 0.75×1 |
| | Air Flow Rate | $m^3$/min | 210 | 210 |
| | Drive | | Direct Drive | Direct Drive |
| Connecting Pipes | Liquid Pipe | mm | φ12.7 (Flare Connection) | φ12.7 (Flare Connection) |
| | Gas Pipe | mm | φ28.6 (Brazing Connection) | φ28.6 (Brazing Connection) |
| | Oil Equalizing Pipe | mm | — | — |
| Machine Weight | | kg | 323 | 325 |
| Safety Devices | | | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs |
| Defrost Method | | | Deicer | Deicer |
| Capacity Control | | % | 10~100 | 10~100 |
| Refrigerant | Refrigerant Name | | R410A | R410A |
| | Charge | kg | 12.9 | 14.4 |
| | Control | | Electronic Expansion Valve | Electronic Expansion Valve |
| Refrigerator Oil | | | Synthetic (ether) oil | Synthetic (ether) oil |
| | Charge Volume | L | 1.9+1.6+1.6 | 1.9+1.6+1.6 |
| Standard Accessories | | | Installation Manual, Operation Manual, Connection Pipes, Clamps | Installation Manual, Operation Manual, Connection Pipes, Clamps |
| Drawing No. | | | 4D038968A | 4D038969A |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

| Model Name (Combination Unit) | | | RXYQ18MY1B | RXYQ20MY1B |
|---|---|---|---|---|
| Model Name (Independent Unit) | | | RXYQ8MY1B+RXYQ10MY1B | RXYQ10MY1B+RXYQ10MY1B |
| ★1 Cooling Capacity (19.5°CWB) | | kcal / h | 45,000 | 50,000 |
| | | Btu / h | 178,000 | 197,000 |
| | | kW | 52.0 | 57.8 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 50.4 | 56.0 |
| ★3 Heating Capacity | | kcal / h | 48,500 | 54,000 |
| | | Btu / h | 193,000 | 216,000 |
| | | kW | 56.5 | 63.0 |
| Casing Color | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | mm | (1600×930×765)+(1600×930×765) | (1600×930×765)+(1600×930×765) |
| Heat Exchanger | | | Cross Fin Coil | Cross Fin Coil |
| Comp. | Type | | Hermetically Sealed Scroll Type | Hermetically Sealed Scroll Type |
| | Displacement | $m^3/h$ | (13.72+10.47)×2 | (13.72+10.47)×2 |
| | Number of Revolutions | r.p.m | (6480, 2900)×2 | (6480, 2900)×2 |
| | Motor Output×Number of Units | kW | (1.2+4.5)+(2.7+4.5) | (2.7+4.5)×2 |
| | Starting Method | | Soft start | Soft start |
| Fan | Type | | Propeller Fan | Propeller Fan |
| | Motor Output | kW | 0.75×2 | 0.75×2 |
| | Air Flow Rate | $m^3/min$ | 175+180 | 180+180 |
| | Drive | | Direct Drive | Direct Drive |
| Connecting Pipes | Liquid Pipe | mm | ϕ15.9 (Brazing Connection) | ϕ15.9 (Brazing Connection) |
| | Gas Pipe | mm | ϕ28.6 (Brazing Connection) | ϕ28.6 (Brazing Connection) |
| | Oil Equalizing Pipe | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) |
| Machine Weight | | kg | 230+230 | 230+230 |
| Safety Devices | | | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs |
| Defrost Method | | | Deicer | Deicer |
| Capacity Control | | % | 7~100 | 7~100 |
| Refrigerant | Refrigerant Name | | R410A | R410A |
| | Charge | kg | 8.6+9.6 | 9.6+9.6 |
| | Control | | Electronic Expansion Valve | Electronic Expansion Valve |
| Refrigerator Oil | | | Synthetic (ether) oil | Synthetic (ether) oil |
| | Charge Volume | L | (1.9+1.6)+(1.9+1.6) | (1.9+1.6)+(1.9+1.6) |
| Standard Accessories | | | Installation Manual, Operation Manual, Connection Pipes, Clamps | Installation Manual, Operation Manual, Connection Pipes, Clamps |
| Drawing No. | | | 4D038965A, 4D038966A | 4D038966A |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

| Model Name (Combination Unit) | | | | RXYQ22MY1B | RXYQ24MY1B |
|---|---|---|---|---|---|
| Model Name (Independent Unit) | | | | RXYQ10MY1B+RXYQ12MY1B | RXYQ10MY1B+RXYQ14MY1B |
| ★1 Cooling Capacity (19.5°CWB) | | | kcal / h | 55,000 | 60,500 |
| | | | Btu / h | 217,000 | 240,000 |
| | | | kW | 63.5 | 70.2 |
| ★2 Cooling Capacity (19.0°CWB) | | | kW | 61.5 | 68.0 |
| ★3 Heating Capacity | | | kcal / h | 59,300 | 65,700 |
| | | | Btu / h | 236,000 | 262,000 |
| | | | kW | 69.0 | 76.5 |
| Casing Color | | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | | mm | (1600×930×765)+(1600×1240×765) | (1600×930×765)+(1600×1240×765) |
| Heat Exchanger | | | | Cross Fin Coil | Cross Fin Coil |
| Comp. | Type | | | Hermetically Sealed Scroll Type | Hermetically Sealed Scroll Type |
| | Displacement | | $m^3/h$ | (13.72+10.47)×2 | (13.72+10.47)+(13.72+10.47+10.47) |
| | Number of Revolutions | | r.p.m | (6480, 2900)×2 | (6480, 2900)+(6480, 2900×2) |
| | Motor Output×Number of Units | | kW | (2.7+4.5)+(4.2+4.5) | (2.7+4.5)+(2.0+4.5+4.5) |
| | Starting Method | | | Soft start | Soft start |
| Fan | Type | | | Propeller Fan | Propeller Fan |
| | Motor Output | | kW | 0.75×2 | 0.75×2 |
| | Air Flow Rate | | $m^3/min$ | 180+210 | 180+210 |
| | Drive | | | Direct Drive | Direct Drive |
| Connecting Pipes | Liquid Pipe | | mm | φ15.9 (Brazing Connection) | φ15.9 (Brazing Connection) |
| | Gas Pipe | | mm | φ28.6 (Brazing Connection) | φ34.9 (Brazing Connection) |
| | Oil Equalizing Pipe | | mm | φ6.4 (Flare Connection) | φ6.4 (Flare Connection) |
| Machine Weight | | | kg | 230+281 | 230+323 |
| Safety Devices | | | | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs |
| Defrost Method | | | | Deicer | Deicer |
| Capacity Control | | | % | 7~100 | 6~100 |
| Refrigerant | Refrigerant Name | | | R410A | R410A |
| | Charge | | kg | 9.6+11.4 | 9.6+12.9 |
| | Control | | | Electronic Expansion Valve | Electronic Expansion Valve |
| Refrigerator Oil | | | | Synthetic (ether) oil | Synthetic (ether) oil |
| | Charge Volume | | L | (1.9+1.6)+(1.9+1.6) | (1.9+1.6)+(1.9+1.6+1.6) |
| Standard Accessories | | | | Installation Manual, Operation Manual, Connection Pipes, Clamps | Installation Manual, Operation Manual, Connection Pipes, Clamps |
| Drawing No. | | | | 4D038966A, 4D038967A | 4D038966A, 4D038968A |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.

★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.

3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

| Model Name (Combination Unit) | | | RXYQ26MY1B | RXYQ28MY1B |
|---|---|---|---|---|
| Model Name (Independent Unit) | | | RXYQ10MY1B+RXYQ16MY1B | RXYQ12MY1B+RXYQ16MY1B |
| ★1 Cooling Capacity (19.5°CWB) | | kcal / h | 65,000 | 70,000 |
| | | Btu / h | 256,000 | 275,000 |
| | | kW | 74.9 | 80.5 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 72.5 | 78.0 |
| ★3 Heating Capacity | | kcal / h | 70,000 | 75,300 |
| | | Btu / h | 279,000 | 299,000 |
| | | kW | 81.5 | 87.5 |
| Casing Color | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | mm | (1600×930×765)+(1600×1240×765) | (1600×1240×765)+(1600×1240×765) |
| Heat Exchanger | | | Cross Fin Coil | Cross Fin Coil |
| Comp. | Type | | Hermetically Sealed Scroll Type | Hermetically Sealed Scroll Type |
| | Displacement | $m^3/h$ | (13.72+10.47)+(13.72+10.47+10.47) | (13.72+10.47)+(13.72+10.47+10.47) |
| | Number of Revolutions | r.p.m | (6480, 2900)+(6480, 2900×2) | (6480, 2900)+(6480, 2900×2) |
| | Motor Output×Number of Units | kW | (2.7+4.5)+(3.0+4.5+4.5) | (4.2+4.5)+(3.0+4.5+4.5) |
| | Starting Method | | Soft start | Soft start |
| Fan | Type | | Propeller Fan | Propeller Fan |
| | Motor Output | kW | 0.75×2 | 0.75×2 |
| | Air Flow Rate | $m^3/min$ | 180+210 | 210+210 |
| | Drive | | Direct Drive | Direct Drive |
| Connecting Pipes | Liquid Pipe | mm | ϕ19.1 (Brazing Connection) | ϕ19.1 (Brazing Connection) |
| | Gas Pipe | mm | ϕ34.9 (Brazing Connection) | ϕ34.9 (Brazing Connection) |
| | Oil Equalizing Pipe | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) |
| Machine Weight | | kg | 230+325 | 281+325 |
| Safety Devices | | | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs |
| Defrost Method | | | Deicer | Deicer |
| Capacity Control | | % | 6~100 | 6~100 |
| Refrigerant | Refrigerant Name | | R410A | R410A |
| | Charge | kg | 9.6+14.4 | 11.4+14.4 |
| | Control | | Electronic Expansion Valve | Electronic Expansion Valve |
| Refrigerator Oil | | | Synthetic (ether) oil | Synthetic (ether) oil |
| | Charge Volume | L | (1.9+1.6)+(1.9+1.6+1.6) | (1.9+1.6)+(1.9+1.6+1.6) |
| Standard Accessories | | | Installation Manual, Operation Manual, Connection Pipes, Clamps | Installation Manual, Operation Manual, Connection Pipes, Clamps |
| Drawing No. | | | 4D038966A, 4D038969A | 4D038967A, 4D038969A |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

| **Model Name (Combination Unit)** | | | **RXYQ30MY1B** | **RXYQ32MY1B** |
|---|---|---|---|---|
| **Model Name (Independent Unit)** | | | **RXYQ14MY1B+RXYQ16MY1B** | **RXYQ16MY1B+RXYQ16MY1B** |
| ★1 Cooling Capacity (19.5°CWB) | | kcal / h | 75,500 | 80,000 |
| | | Btu / h | 298,000 | 314,000 |
| | | kW | 87.2 | 91.9 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 84.5 | 89.0 |
| ★3 Heating Capacity | | kcal / h | 81,700 | 86,000 |
| | | Btu / h | 325,000 | 342,000 |
| | | kW | 95.0 | 100 |
| Casing Color | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | mm | (1600×1240×765)+(1600×1240×765) | (1600×1240×765)+(1600×1240×765) |
| Heat Exchanger | | | Cross Fin Coil | Cross Fin Coil |
| Comp. | Type | | Hermetically Sealed Scroll Type | Hermetically Sealed Scroll Type |
| | Displacement | $m^3/h$ | (13.72+10.47+10.47)×2 | (13.72+10.47+10.47)×2 |
| | Number of Revolutions | r.p.m | (6480, 2900×2)×2 | (6480, 2900×2)×2 |
| | Motor Output×Number of Units | kW | (2.0+4.5+4.5)+(3.0+4.5+4.5) | (3.0+4.5+4.5)+(3.0+4.5+4.5) |
| | Starting Method | | Soft start | Soft start |
| Fan | Type | | Propeller Fan | Propeller Fan |
| | Motor Output | kW | 0.75×2 | 0.75×2 |
| | Air Flow Rate | $m^3/min$ | 210×2 | 210×2 |
| | Drive | | Direct Drive | Direct Drive |
| Connecting Pipes | Liquid Pipe | mm | ϕ19.1 (Brazing Connection) | ϕ19.1 (Brazing Connection) |
| | Gas Pipe | mm | ϕ34.9 (Brazing Connection) | ϕ34.9 (Brazing Connection) |
| | Oil Equalizing Pipe | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) |
| Machine Weight | | kg | 323+325 | 325+325 |
| Safety Devices | | | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs |
| Defrost Method | | | Deicer | Deicer |
| Capacity Control | | % | 5~100 | 5~100 |
| Refrigerant | Refrigerant Name | | R410A | R410A |
| | Charge | kg | 12.9+14.4 | 14.4+14.4 |
| | Control | | Electronic Expansion Valve | Electronic Expansion Valve |
| Refrigerator Oil | | | Synthetic (ether) oil | Synthetic (ether) oil |
| | Charge Volume | L | (1.9+1.6+1.6)+(1.9+1.6+1.6) | (1.9+1.6+1.6)+(1.9+1.6+1.6) |
| Standard Accessories | | | Installation Manual, Operation Manual, Connection Pipes, Clamps | Installation Manual, Operation Manual, Connection Pipes, Clamps |
| Drawing No. | | | 4D038968A, 4D038969A | 4D038969A |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.

★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.

★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

| Model Name (Combination Unit) | | | RXYQ34MY1B | RXYQ36MY1B |
|---|---|---|---|---|
| Model Name (Independent Unit) | | | RXYQ10MY1B+RXYQ10MY1B+RXYQ14MY1B | RXYQ10MY1B+RXYQ10MY1B+RXYQ16MY1B |
| ★1 Cooling Capacity (19.5°CWB) | | kcal / h | 85,500 | 90,000 |
| | | Btu / h | 338,000 | 354,000 |
| | | kW | 99.1 | 104 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 96.0 | 101 |
| ★3 Heating Capacity | | kcal / h | 92,700 | 97,000 |
| | | Btu / h | 370,000 | 387,000 |
| | | kW | 108 | 113 |
| Casing Color | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | mm | (1600×930×765)+(1600×930×765)+(1600×1240×765) | (1600×930×765)+(1600×930×765)+(1600×1240×765) |
| Heat Exchanger | | | Cross Fin Coil | Cross Fin Coil |
| Comp. | Type | | Hermetically Sealed Scroll Type | Hermetically Sealed Scroll Type |
| | Displacement | $m^3/h$ | (13.72+10.47)×2+(13.72+10.47+10.47) | (13.72+10.47)×2+(13.72+10.47+10.47) |
| | Number of Revolutions | r.p.m | (6480, 2900)×2+(6480, 2900×2) | (6480, 2900)×2+(6480, 2900×2) |
| | Motor Output×Number of Units | kW | (2.7+4.5)+(2.7+4.5)+(2.0+4.5+4.5) | (2.7+4.5)+(2.7+4.5)+(3.0+4.5+4.5) |
| | Starting Method | | Soft start | Soft start |
| Fan | Type | | Propeller Fan | Propeller Fan |
| | Motor Output | kW | 0.75×3 | 0.75×3 |
| | Air Flow Rate | $m^3/min$ | 180+180+210 | 180+180+210 |
| | Drive | | Direct Drive | Direct Drive |
| Connecting Pipes | Liquid Pipe | mm | ϕ19.1 (Brazing Connection) | ϕ19.1 (Brazing Connection) |
| | Gas Pipe | mm | ϕ34.9 (Brazing Connection) | ϕ41.3 (Brazing Connection) |
| | Oil Equalizing Pipe | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) |
| Machine Weight | | kg | 230+230+323 | 230+230+325 |
| Safety Devices | | | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs |
| Defrost Method | | | Deicer | Deicer |
| Capacity Control | | % | 4~100 | 4~100 |
| Refrigerant | Refrigerant Name | | R410A | R410A |
| | Charge | kg | 9.6+9.6+12.9 | 9.6+9.6+14.4 |
| | Control | | Electronic Expansion Valve | Electronic Expansion Valve |
| Refrigerator Oil | | | Synthetic (ether) oil | Synthetic (ether) oil |
| | Charge Volume | L | (1.9+1.6)+(1.9+1.6)+(1.9+1.6+1.6) | (1.9+1.6)+(1.9+1.6)+(1.9+1.6+1.6) |
| Standard Accessories | | | Installation Manual, Operation Manual, Connection Pipes, Clamps | Installation Manual, Operation Manual, Connection Pipes, Clamps |
| Drawing No. | | | 4D038966A, 4D038968A | 4D038966A, 4D038969A |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.

★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.

★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

| Model Name (Combination Unit) | | | RXYQ38MY1B | RXYQ40MY1B |
|---|---|---|---|---|
| Model Name (Independent Unit) | | | RXYQ10MY1B+RXYQ12MY1B+RXYQ16MY1B | RXYQ10MY1B+RXYQ14MY1B+RXYQ16MY1B |
| ★1 Cooling Capacity (19.5°CWB) | | kcal / h | 95,000 | 101,000 |
| | | Btu / h | 374,000 | 397,000 |
| | | kW | 109 | 117 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 106 | 113 |
| ★3 Heating Capacity | | kcal / h | 102,000 | 109,000 |
| | | Btu / h | 407,000 | 433,000 |
| | | kW | 119 | 127 |
| Casing Color | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | mm | (1600×930×765)+(1600×1240×765)+(1600×1240×765) | (1600×930×765)+(1600×1240×765)+(1600×1240×765) |
| Heat Exchanger | | | Cross Fin Coil | Cross Fin Coil |
| Comp. | Type | | Hermetically Sealed Scroll Type | Hermetically Sealed Scroll Type |
| | Displacement | $m^3/h$ | (13.72+10.47)×2+(13.72+10.47+10.47) | (13.72+10.47)+(13.72+10.47+10.47)×2 |
| | Number of Revolutions | r.p.m | (6480, 2900)×2+(6480, 2900×2) | (6480, 2900), (6480, 2900×2)×2 |
| | Motor Output×Number of Units | kW | (2.7+4.5)+(4.2+4.5)+(3.0+4.5+4.5) | (2.7+4.5)+(2.0+4.5+4.5)+(3.0+4.5+4.5) |
| | Starting Method | | Soft start | Soft start |
| Fan | Type | | Propeller Fan | Propeller Fan |
| | Motor Output | kW | 0.75×3 | 0.75×3 |
| | Air Flow Rate | $m^3/min$ | 180+210+210 | 180+210+210 |
| | Drive | | Direct Drive | Direct Drive |
| Connecting Pipes | Liquid Pipe | mm | ϕ19.1 (Brazing Connection) | ϕ19.1 (Brazing Connection) |
| | Gas Pipe | mm | ϕ41.3 (Brazing Connection) | ϕ41.3 (Brazing Connection) |
| | Oil Equalizing Pipe | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) |
| Machine Weight | | kg | 230+281+325 | 230+323+325 |
| Safety Devices | | | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs |
| Defrost Method | | | Deicer | Deicer |
| Capacity Control | | % | 4~100 | 4~100 |
| Refrigerant | Refrigerant Name | | R410A | R410A |
| | Charge | kg | 9.6+11.4+14.4 | 9.6+12.9+14.4 |
| | Control | | Electronic Expansion Valve | Electronic Expansion Valve |
| Refrigerator Oil | | | Synthetic (ether) oil | Synthetic (ether) oil |
| | Charge Volume | L | (1.9+1.6)+(1.9+1.6)+(1.9+1.6+1.6) | (1.9+1.6)+(1.9+1.6+1.6)+(1.9+1.6+1.6) |
| Standard Accessories | | | Installation Manual, Operation Manual, Connection Pipes, Clamps | Installation Manual, Operation Manual, Connection Pipes, Clamps |
| Drawing No. | | | 4D038966A, 4D038967A, 4D038969A | 4D038966A, 4D038968A, 4D038969A |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.

★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.

★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

| Model Name (Combination Unit) | | | RXYQ42MY1B | RXYQ44MY1B |
|---|---|---|---|---|
| Model Name (Independent Unit) | | | RXYQ10MY1B+RXYQ16MY1B+RXYQ16MY1B | RXYQ12MY1B+RXYQ16MY1B+RXYQ16MY1B |
| ★1 Cooling Capacity (19.5°CWB) | | kcal / h | 105,000 | 110,000 |
| | | Btu / h | 413,000 | 432,000 |
| | | kW | 121 | 127 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 117 | 123 |
| ★3 Heating Capacity | | kcal / h | 113,000 | 118,000 |
| | | Btu / h | 450,000 | 470,000 |
| | | kW | 132 | 138 |
| Casing Color | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | mm | (1600×930×765)+(1600×1240×765)+(1600×1240×765) | (1600×1240×765)+(1600×1240×765)+(1600×1240×765) |
| Heat Exchanger | | | Cross Fin Coil | Cross Fin Coil |
| Comp. | Type | | Hermetically Sealed Scroll Type | Hermetically Sealed Scroll Type |
| | Displacement | $m^3/h$ | (13.72+10.47)+(13.72+10.47+10.47)×2 | (13.72+10.47)+(13.72+10.47+10.47)×2 |
| | Number of Revolutions | r.p.m | (6480, 2900), (6480, 2900×2)×2 | (6480, 2900), (6480, 2900×2)×2 |
| | Motor Output×Number of Units | kW | (2.7+4.5)+(3.0+4.5+4.5)×2 | (4.2+4.5)+(3.0+4.5+4.5)×2 |
| | Starting Method | | Soft start | Soft start |
| Fan | Type | | Propeller Fan | Propeller Fan |
| | Motor Output | kW | 0.75×3 | 0.75×3 |
| | Air Flow Rate | $m^3/min$ | 180+210+210 | 210+210+210 |
| | Drive | | Direct Drive | Direct Drive |
| Connecting Pipes | Liquid Pipe | mm | ϕ19.1 (Brazing Connection) | ϕ19.1 (Brazing Connection) |
| | Gas Pipe | mm | ϕ41.3 (Brazing Connection) | ϕ41.3 (Brazing Connection) |
| | Oil Equalizing Pipe | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) |
| Machine Weight | | kg | 230+325+325 | 281+325+325 |
| Safety Devices | | | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs |
| Defrost Method | | | Deicer | Deicer |
| Capacity Control | | % | 4~100 | 4~100 |
| Refrigerant | Refrigerant Name | | R410A | R410A |
| | Charge | kg | 9.6+14.4+14.4 | 11.4+14.4+14.4 |
| | Control | | Electronic Expansion Valve | Electronic Expansion Valve |
| Refrigerator Oil | | | Synthetic (ether) oil | Synthetic (ether) oil |
| | Charge Volume | L | (1.9+1.6)+(1.9+1.6+1.6)+(1.9+1.6+1.6) | (1.9+1.6)+(1.9+1.6+1.6)+(1.9+1.6+1.6) |
| Standard Accessories | | | Installation Manual, Operation Manual, Connection Pipes, Clamps | Installation Manual, Operation Manual, Connection Pipes, Clamps |
| Drawing No. | | | 4D038966A, 4D038969A | 4D038967A, 4D038969A |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.

★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.

★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

| Model Name (Combination Unit) | | | | RXYQ46MY1B | RXYQ48MY1B |
|---|---|---|---|---|---|
| Model Name (Independent Unit) | | | | RXYQ14MY1B+RXYQ16MY1B+RXYQ16MY1B | RXYQ16MY1B+RXYQ16MY1B+RXYQ16MY1B |
| ★1 Cooling Capacity (19.5°CWB) | | | kcal / h | 116,000 | 120,000 |
| | | | Btu / h | 455,000 | 471,000 |
| | | | kW | 133 | 138 |
| ★2 Cooling Capacity (19.0°CWB) | | | kW | 129 | 134 |
| ★3 Heating Capacity | | | kcal / h | 125,000 | 129,000 |
| | | | Btu / h | 496,000 | 513,000 |
| | | | kW | 145 | 150 |
| Casing Color | | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | | mm | (1600×1240×765)+(1600×1240×765)+(1600×1240×765) | (1600×1240×765)+(1600×1240×765)+(1600×1240×765) |
| Heat Exchanger | | | | Cross Fin Coil | Cross Fin Coil |
| Comp. | Type | | | Hermetically Sealed Scroll Type | Hermetically Sealed Scroll Type |
| | Displacement | | $m^3/h$ | (13.72+10.47+10.47)×3 | (13.72+10.47+10.47)×3 |
| | Number of Revolutions | | r.p.m | (6480, 2900×2)×3 | (6480, 2900×2)×3 |
| | Motor Output×Number of Units | | kW | (2.0+4.5+4.5)+(3.0+4.5+4.5)×2 | (3.0+4.5+4.5)×3 |
| | Starting Method | | | Soft start | Soft start |
| Fan | Type | | | Propeller Fan | Propeller Fan |
| | Motor Output | | kW | 0.75×3 | 0.75×3 |
| | Air Flow Rate | | $m^3/min$ | 210+210+210 | 210+210+210 |
| | Drive | | | Direct Drive | Direct Drive |
| Connecting Pipes | Liquid Pipe | | mm | ϕ19.1 (Brazing Connection) | ϕ19.1 (Brazing Connection) |
| | Gas Pipe | | mm | ϕ41.3 (Brazing Connection) | ϕ41.3 (Brazing Connection) |
| | Oil Equalizing Pipe | | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) |
| Machine Weight | | | kg | 323+325+325 | 325+325+325 |
| Safety Devices | | | | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs | High Pressure Switch, Fan Driver Overload Protector, Over Current Relay, Inverter Overload Protector, Fusible Plugs |
| Defrost Method | | | | Deicer | Deicer |
| Capacity Control | | | % | 3~100 | 3~100 |
| Refrigerant | Refrigerant Name | | | R410A | R410A |
| | Charge | | kg | 12.9+14.4+14.4 | 14.4+14.4+14.4 |
| | Control | | | Electronic Expansion Valve | Electronic Expansion Valve |
| Refrigerator Oil | | | | Synthetic (ether) oil | Synthetic (ether) oil |
| | Charge Volume | | L | (1.9+1.6+1.6)+(1.9+1.6+1.6)+(1.9+1.6+1.6) | (1.9+1.6+1.6)+(1.9+1.6+1.6)+(1.9+1.6+1.6) |
| Standard Accessories | | | | Installation Manual, Operation Manual, Connection Pipes, Clamps | Installation Manual, Operation Manual, Connection Pipes, Clamps |
| Drawing No. | | | | 4D038968A, 4D038969A | 4D038969A |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp. : 35°CDB / Equivalent piping length : 7.5m, level difference : 0m.
★3 Indoor temp. : 20°CDB / outdoor temp. : 7°CDB, 6°CWB / Equivalent piping length : 7.5m, level difference : 0m.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

# 1.2 Indoor Units

## Ceiling Mounted Cassette Type (Double Flow)

| Model | | | | FXCQ20MVE | FXCQ25MVE | FXCQ32MVE | FXCQ40MVE |
|---|---|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | | kcal/h | 2,000 | 2,500 | 3,150 | 4,000 |
| | | | Btu/h | 7,900 | 9,900 | 12,500 | 15,900 |
| | | | kW | 2.3 | 2.9 | 3.7 | 4.7 |
| ★2 Cooling Capacity (19.0°CWB) | | | kW | 2.2 | 2.8 | 3.6 | 4.5 |
| ★3 Heating Capacity | | | kcal/h | 2,200 | 2,800 | 3,400 | 4,300 |
| | | | Btu/h | 8,500 | 10,900 | 13,600 | 17,000 |
| | | | kW | 2.5 | 3.2 | 4.0 | 5.0 |
| Casing | | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | | mm | 305×775×600 | 305×775×600 | 305×775×600 | 305×990×600 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | | mm | 2×10×1.5 | 2×10×1.5 | 2×10×1.5 | 2×10×1.5 |
| | Face Area | | $m^2$ | 2×0.100 | 2×0.100 | 2×0.100 | 2×0.145 |
| Fan | Model | | | D17K2AA1 | D17K2AB1 | D17K2AB1 | 2D17K1AA1 |
| | Type | | | Sirocco Fan | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | | W | 10×1 | 15×1 | 15×1 | 20×1 |
| | Air Flow Rate (H/L) | | $m^3$/min | 7/5 | 9/6.5 | 9/6.5 | 12/9 |
| | | | cfm | 247/177 | 318/230 | 318/230 | 424/318 |
| | Drive | | | Direct Drive | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | | Glass Wool/Urethane Foam | Glass Wool/Urethane Foam | Glass Wool/Urethane Foam | Glass Wool/Urethane Foam |
| Piping Connections | Liquid Pipes | | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) |
| | Gas Pipes | | mm | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) |
| | Drain Pipe | | mm | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) |
| Machine Weight | | | kg | 26 | 26 | 26 | 31 |
| ★5 Sound Level (H/L) (220V) | | | dBA | 32/27 | 34/28 | 34/28 | 34/29 |
| Safety Devices | | | | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor |
| Refrigerant Control | | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | | R410A M Series | R410A M Series | R410A M Series | R410A M Series |
| Decoration Panels (Option) | ★6 Model | | | BYBC32GJW1 BYBC32G-W1 | BYBC32GJW1 BYBC32G-W1 | BYBC32GJW1 BYBC32G-W1 | BYBC50GJW1 BYBC50G-W1 |
| | Panel Color | | | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) |
| | Dimensions: (H×W×D) | | mm | 53×1,030×680 | 53×1,030×680 | 53×1,030×680 | 53×1,245×680 |
| | Air Filter | | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| | Weight | | kg | 8 | 8 | 8 | 8.5 |
| Standard Accessories | | | | Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers. |
| Drawing No. | | | | 3D039413 | | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.
★6 BYBC-GJW1 : Without origin, BYBC-G-W1 : With origin

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Ceiling Mounted Cassette Type (Double Flow)

| Model | | | | FXCQ50MVE | FXCQ63MVE | FXCQ80MVE | FXCQ125MVE |
|---|---|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | | kcal/h | 5,000 | 6,300 | 8,000 | 12,500 |
| | | | Btu/h | 19,900 | 25,000 | 31,800 | 49,600 |
| | | | kW | 5.8 | 7.3 | 9.3 | 14.5 |
| ★2 Cooling Capacity (19.0°CWB) | | | kW | 5.6 | 7.1 | 9.0 | 14.0 |
| ★3 Heating Capacity | | | kcal/h | 5,400 | 6,900 | 8,600 | 13,800 |
| | | | Btu/h | 21,500 | 27,300 | 34,100 | 54,600 |
| | | | kW | 6.3 | 8.0 | 10.0 | 16.0 |
| Casing | | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | | mm | 305×990×600 | 305×1,175×600 | 305×1,665×600 | 305×1,665×600 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | | mm | 2×10×1.5 | 2×10×1.5 | 2×10×1.5 | 2×10×1.5 |
| | Face Area | | $m^2$ | 2×0.145 | 2×0.184 | 2×0.287 | 2×0.287 |
| Fan | Model | | | 2D17K1AA1 | 2D17K2AA1VE | 3D17K2AA1 | 3D17K2AB1 |
| | Type | | | Sirocco Fan | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | | W | 20×1 | 30×1 | 50×1 | 85×1 |
| | Air Flow Rate (H/L) | | $m^3$/min | 12/9 | 16.5/13 | 26/21 | 33/25 |
| | | | cfm | 424/318 | 582/459 | 918/741 | 1,165/883 |
| | Drive | | | Direct Drive | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | | Glass Wool/Urethane Foam | Glass Wool/Urethane Foam | Glass Wool/Urethane Foam | Glass Wool/Urethane Foam |
| Piping Connections | Liquid Pipes | | mm | φ6.4 (Flare Connection) | φ9.5 (Flare Connection) | φ9.5 (Flare Connection) | φ9.5 (Flare Connection) |
| | Gas Pipes | | mm | φ12.7 (Flare Connection) | φ15.9 (Flare Connection) | φ15.9 (Flare Connection) | φ15.9 (Flare Connection) |
| | Drain Pipe | | mm | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) |
| Machine Weight | | | kg | 32 | 35 | 47 | 48 |
| ★5 Sound Level (H/L) | | | dBA | 34/29 | 37/32 | 39/34 | 44/38 |
| Safety Devices | | | | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor |
| Refrigerant Control | | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | | R410A M Series | R410A M Series | R410A M Series | R410A M Series |
| Decoration Panels (Option) | ★6 Model | | | BYBC50GJW1 BYBC50G-W1 | BYBC63GJW1 BYBC63G-W1 | BYBC125GJW1 BYBC125G-W1 | BYBC125GJW1 BYBC125G-W1 |
| | Panel Color | | | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) |
| | Dimensions: (H×W×D) | | mm | 53×1,245×680 | 53×1,430×680 | 53×1,920×680 | 53×1,920×680 |
| | Air Filter | | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| | Weight | | kg | 8.5 | 9.5 | 12 | 12 |
| Standard Accessories | | | | Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Washer for Hanging Brackets, Clamp Metal, Drain Hose, Insulation for Fitting, Washer Fixing Plates, Sealing Pads, Clamps, Screws, Washers. |
| Drawing No. | | | | 3D039413 | | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.
★6 BYBC-GJW1 : Without origin, BYBC-G-W1 : With origin

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Ceiling Mounted Cassette Type (Multi Flow) 600×600

| Model | | | FXZQ20MVE | FXZQ25MVE | FXZQ32MVE |
|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 2,000 | 2,500 | 3,150 |
| | | Btu/h | 7,900 | 9,900 | 12,500 |
| | | kW | 2.3 | 2.9 | 3.7 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 2.2 | 2.8 | 3.6 |
| ★3 Heating Capacity | | kcal/h | 2,200 | 2,800 | 3,400 |
| | | Btu/h | 8,500 | 10,900 | 13,600 |
| | | kW | 2.5 | 3.2 | 4.0 |
| Casing | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | mm | 260 (286)×575×575<br>( ): Include Control Box | 260 (286)×575×575<br>( ): Include Control Box | 260 (286)×575×575<br>( ): Include Control Box |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 2×10×1.5 | 2×10×1.5 | 2×10×1.5 |
| | Face Area | $m^2$ | 0.269 | 0.269 | 0.269 |
| Fan | Model | | QTS32C15M | QTS32C15M | QTS32C15M |
| | Type | | Turbo Fan | Turbo Fan | Turbo Fan |
| | Motor Output × Number of Units | W | 55×1 | 55×1 | 55×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 9/7 | 9/7 | 9.5/7.5 |
| | | cfm | 318/247 | 318/247 | 335/265 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Foamed Polystyrene/<br>Foamed Polyethylene | Foamed Polystyrene/<br>Foamed Polyethylene | Foamed Polystyrene/<br>Foamed Polyethylene |
| Piping Connections | Liquid Pipes | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) |
| | Gas Pipes | mm | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) |
| | Drain Pipe | mm | VP20<br>(External Dia. 26<br>Internal Dia. 20) | VP20<br>(External Dia. 26<br>Internal Dia. 20) | VP20<br>(External Dia. 26<br>Internal Dia. 20) |
| Machine Weight | | kg | 18 | 18 | 18 |
| ★5 Sound Level (H/L) (230V) | | dBA | 30/25 | 30/25 | 32/26 |
| Safety Devices | | | Fuse | Fuse | Fuse |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | R410A M Series | R410A M Series | R410A M Series |
| Decoration Panels (Option) | Model | | BYFQ60BW1 | BYFQ60BW1 | BYFQ60BW1 |
| | Panel Color | | White (Ral 9010) | White (Ral 9010) | White (Ral 9010) |
| | Dimensions: (H×W×D) | mm | 55×700×700 | 55×700×700 | 55×700×700 |
| | Air Filter | | Resin Net<br>(with Mold Resistant) | Resin Net<br>(with Mold Resistant) | Resin Net<br>(with Mold Resistant) |
| | Weight | kg | 2.7 | 2.7 | 2.7 |
| Standard Accessories | | | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting. |
| Drawing No. | | | 3D038929A | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Ceiling Mounted Cassette Type (Multi Flow) 600×600

| Model | | | FXZQ40MVE | FXZQ50MVE |
|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 4,000 | 5,000 |
| | | Btu/h | 15,900 | 19,900 |
| | | kW | 4.7 | 5.8 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 4.5 | 5.6 |
| ★3 Heating Capacity | | kcal/h | 4,300 | 5,400 |
| | | Btu/h | 17,000 | 21,500 |
| | | kW | 5.0 | 6.3 |
| Casing | | | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | mm | 260 (286)×575×575<br>( ): Include Control Box | 260 (286)×575×575<br>( ): Include Control Box |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 2×10×1.5 | 2×10×1.5 |
| | Face Area | $m^2$ | 0.269 | 0.269 |
| Fan | Model | | QTS32C15M | QTS32C15M |
| | Type | | Turbo Fan | Turbo Fan |
| | Motor Output × Number of Units | W | 55×1 | 55×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 11/8 | 14/10 |
| | | cfm | 388/282 | 494/353 |
| | Drive | | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Foamed Polystyrene/Foamed Polyethylene | Foamed Polystyrene/Foamed Polyethylene |
| Piping Connections | Liquid Pipes | mm | φ6.4 (Flare Connection) | φ6.4 (Flare Connection) |
| | Gas Pipes | mm | φ12.7 (Flare Connection) | φ12.7 (Flare Connection) |
| | Drain Pipe | mm | VP20<br>(External Dia. 26<br>Internal Dia. 20) | VP20<br>(External Dia. 26<br>Internal Dia. 20) |
| Machine Weight | | kg | 18 | 18 |
| ★5 Sound Level (H/L) (230V) | | dBA | 36/28 | 41/33 |
| Safety Devices | | | Fuse | Fuse, |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | R410A M Series | R410A M Series |
| Decoration Panels (Option) | Model | | BYFQ60BW1 | BYFQ60BW1 |
| | Panel Color | | White (Ral 9010) | White (Ral 9010) |
| | Dimensions: (H×W×D) | mm | 55×700×700 | 55×700×700 |
| | Air Filter | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| | Weight | kg | 2.7 | 2.7 |
| Standard Accessories | | | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Washer Fixing Plate, Sealing Pads, Clamps, Screws, Washer for Hanging Bracket, Insulation for Fitting. |
| Drawing No. | | | 3D038929A | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Ceiling Mounted Cassette Type (Multi-flow)

| Model | | | FXFQ25MVE | FXFQ32MVE | FXFQ40MVE | FXFQ50MVE |
|---|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 2,500 | 3,150 | 4,000 | 5,000 |
| | | Btu/h | 9,900 | 12,500 | 15,900 | 19,900 |
| | | kW | 2.9 | 3.7 | 4.7 | 5.8 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 2.8 | 3.6 | 4.5 | 5.6 |
| ★3 Heating Capacity | | kcal/h | 2,800 | 3,400 | 4,300 | 5,400 |
| | | Btu/h | 10,900 | 13,600 | 17,000 | 21,500 |
| | | kW | 3.2 | 4.0 | 5.0 | 6.3 |
| Casing | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | mm | 246×840×840 | 246×840×840 | 246×840×840 | 246×840×840 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 2×8×1.2 | 2×8×1.2 | 2×8×1.2 | 2×8×1.2 |
| | Face Area | $m^2$ | 0.363 | 0.363 | 0.363 | 0.363 |
| Fan | Model | | QTS46D14M | QTS46D14M | QTS46D14M | QTS46D14M |
| | Type | | Turbo Fan | Turbo Fan | Turbo Fan | Turbo Fan |
| | Motor Output × Number of Units | W | 30×1 | 30×1 | 30×1 | 30×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 13/10 | 13/10 | 15/11 | 16/11 |
| | | cfm | 459/353 | 459/353 | 530/388 | 565/388 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Polyurethane Form | Polyurethane Form | Polyurethane Form | Polyurethane Form |
| Piping Connections | Liquid Pipes | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) |
| | Gas Pipes | mm | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) |
| | Drain Pipe | mm | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) |
| Machine Weight | | kg | 24 | 24 | 24 | 24 |
| ★5 Sound Level (H/L) (220V) | | dBA | 30/27 | 30/27 | 31/27 | 32/27 |
| Safety Devices | | | Fuse | Fuse | Fuse | Fuse |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | R410A M Series | R410A M Series | R410A M Series | R410A M Series |
| Decoration Panels (Option) | Model | | BYCP125D-W1 | BYCP125D-W1 | BYCP125D-W1 | BYCP125D-W1 |
| | Panel Color | | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) |
| | Dimensions: (H×W×D) | mm | 45×950×950 | 45×950×950 | 45×950×950 | 45×950×950 |
| | Air Filter | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| | Weight | kg | 5.5 | 5.5 | 5.5 | 5.5 |
| Standard Accessories | | | Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting. | Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting. | Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting. | Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting. |
| Drawing No. | | | 3D038812 | | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Ceiling Mounted Cassette Type (Multi-flow)

| Model | | | FXFQ63MVE | FXFQ80MVE | FXFQ100MVE | FXFQ125MVE |
|---|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 6,300 | 8,000 | 10,000 | 12,500 |
| | | Btu/h | 25,000 | 31,800 | 39,700 | 49,600 |
| | | kW | 7.3 | 9.3 | 11.6 | 14.5 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 7.1 | 9.0 | 11.2 | 14.0 |
| ★3 Heating Capacity | | kcal/h | 6,900 | 8,600 | 10,800 | 13,800 |
| | | Btu/h | 27,300 | 34,100 | 42,700 | 54,600 |
| | | kW | 8.0 | 10.0 | 12.5 | 16.0 |
| Casing | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | mm | 246×840×840 | 246×840×840 | 288×840×840 | 288×840×840 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 2×10×1.2 | 2×10×1.2 | 2×12×1.2 | 2×12×1.2 |
| | Face Area | $m^2$ | 0.454 | 0.454 | 0.544 | 0.544 |
| Fan | Model | | QTS46D14M | QTS46D14M | QTS46C17M | QTS46C17M |
| | Type | | Turbo Fan | Turbo Fan | Turbo Fan | Turbo Fan |
| | Motor Output × Number of Units | W | 30×1 | 30×1 | 120×1 | 120×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 18.5/14 | 20/15 | 26/21 | 30/24 |
| | | cfm | 653/494 | 706/530 | 918/741 | 1,059/847 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Polyurethane Form | Polyurethane Form | Polyurethane Form | Polyurethane Form |
| Piping Connections | Liquid Pipes | mm | φ9.5 (Flare Connection) | φ9.5 (Flare Connection) | φ9.5 (Flare Connection) | φ9.5 (Flare Connection) |
| | Gas Pipes | mm | φ15.9 (Flare Connection) | φ15.9 (Flare Connection) | φ15.9 (Flare Connection) | φ15.9 (Flare Connection) |
| | Drain Pipe | mm | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) |
| Machine Weight | | kg | 25 | 25 | 29 | 29 |
| ★5 Sound Level (H/L) | | dBA | 33/28 | 36/31 | 39/33 | 42/36 |
| Safety Devices | | | Fuse | Fuse | Fuse | Fuse |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | R410A M Series | R410A M Series | R410A M Series | R410A M Series |
| Decoration Panels (Option) | Model | | BYCP125D-W1 | BYCP125D-W1 | BYCP125D-W1 | BYCP125D-W1 |
| | Panel Color | | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) |
| | Dimensions: (H×W×D) | mm | 45×950×950 | 45×950×950 | 45×950×950 | 45×950×950 |
| | Air Filter | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| | Weight | kg | 5.5 | 5.5 | 5.5 | 5.5 |
| Standard Accessories | | | Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting. | Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting. | Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting. | Operation manual, Installation manual, Paper pattern for installation, Drain hose, Clamp metal, Washer fixing plate, Sealing pads, Clamps, Screws, Washer for hanging bracket, Insulation for fitting. |
| Drawing No. | | | 3D038812 | | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Ceiling Mounted Cassette Corner Type

| Model | | | | FXKQ25MVE | FXKQ32MVE | FXKQ40MVE | FXKQ63MVE |
|---|---|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | | kcal/h | 2,500 | 3,150 | 4,000 | 6,300 |
| | | | Btu/h | 9,900 | 12,500 | 15,900 | 25,000 |
| | | | kW | 2.9 | 3.7 | 4.7 | 7.3 |
| ★2 Cooling Capacity (19.0°CWB) | | | kW | 2.8 | 3.6 | 4.5 | 7.1 |
| ★3 Heating Capacity | | | kcal/h | 2,800 | 3,400 | 4,300 | 6,900 |
| | | | Btu/h | 10,900 | 13,600 | 17,000 | 27,300 |
| | | | kW | 3.2 | 4.0 | 5.0 | 8.0 |
| Casing | | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | | mm | 215×1,110×710 | 215×1,110×710 | 215×1,110×710 | 215×1,310×710 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | | mm | 2×11×1.75 | 2×11×1.75 | 2×11×1.75 | 3×11×1.75 |
| | Face Area | | $m^2$ | 0.180 | 0.180 | 0.180 | 0.226 |
| Fan | Model | | | 3D12H1AN1V1 | 3D12H1AN1V1 | 3D12H1AP1V1 | 4D12H1AJ1V1 |
| | Type | | | Sirocco Fan | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | | W | 15×1 | 15×1 | 20×1 | 45×1 |
| | Air Flow Rate (H/L) | | $m^3$/min | 11/9 | 11/9 | 13/10 | 18/15 |
| | | | cfm | 388/318 | 388/318 | 459/353 | 635/530 |
| | Drive | | | Direct Drive | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | | Polyethylene Foam | Polyethylene Foam | Polyethylene Foam | Polyethylene Foam |
| Piping Connections | Liquid Pipes | | mm | φ6.4 (Flare Connection) | φ6.4 (Flare Connection) | φ6.4 (Flare Connection) | φ9.5 (Flare Connection) |
| | Gas Pipes | | mm | φ12.7 (Flare Connection) | φ12.7 (Flare Connection) | φ12.7 (Flare Connection) | φ15.9 (Flare Connection) |
| | Drain Pipe | | mm | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) |
| Machine Weight | | | kg | 31 | 31 | 31 | 34 |
| ★5 Sound Level (H/L) (220V) | | | dBA | 38/33 | 38/33 | 40/34 | 42/37 |
| Safety Devices | | | | Fuse, Thermal Fuse for Fan Motor | Fuse, Thermal Fuse for Fan Motor | Fuse, Thermal Fuse for Fan Motor | Fuse, Thermal Fuse for Fan Motor |
| Refrigerant Control | | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable Outdoor Units | | | | R410A M Series | R410A M Series | R410A M Series | R410A M Series |
| Decoration Panels (Option) | Model | | | BYK45FJW1 | BYK45FJW1 | BYK45FJW1 | BYK71FJW1 |
| | Panel Color | | | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) |
| | Dimensions: (H×W×D) | | mm | 70×1,240×800 | 70×1,240×800 | 70×1,240×800 | 70×1,440×800 |
| | Air Filter | | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| | Weight | | kg | 8.5 | 8.5 | 8.5 | 9.5 |
| Standard Accessories | | | | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Positioning Jig for Installation, Insulation for Hanger Bracket, Air Outlet Blocking Pad. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Positioning Jig for Installation, Insulation for Hanger Bracket, Air Outlet Blocking Pad. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Positioning Jig for Installation, Insulation for Hanger Bracket, Air Outlet Blocking Pad. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers, Positioning Jig for Installation, Insulation for Hanger Bracket, Air Outlet Blocking Pad. |
| Drawing No. | | | | 3D038813 | | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured at a point 1m in front of the unit and 1m downward. During actual operation, these values are normally somewhat higher as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Ceiling Mounted Built-in Type

| Model | | | | FXSQ20MVE | FXSQ25MVE | FXSQ32MVE |
|---|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | | kcal/h | 2,000 | 2,500 | 3,150 |
| | | | Btu/h | 7,900 | 9,900 | 12,500 |
| | | | kW | 2.3 | 2.9 | 3.7 |
| ★2 Cooling Capacity (19.0°CWB) | | | kW | 2.2 | 2.8 | 3.6 |
| ★3 Heating Capacity | | | kcal/h | 2,200 | 2,800 | 3,400 |
| | | | Btu/h | 8,500 | 10,900 | 13,600 |
| | | | kW | 2.5 | 3.2 | 4.0 |
| Casing | | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | | mm | 300×550×800 | 300×550×800 | 300×550×800 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | | mm | 3×14×1.75 | 3×14×1.75 | 3×14×1.75 |
| | Face Area | | $m^2$ | 0.088 | 0.088 | 0.088 |
| Fan | Model | | | D18H3A | D18H3A | D18H3A |
| | Type | | | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | | W | 50×1 | 50×1 | 50×1 |
| | Air Flow Rate (H/L) | | $m^3$/min | 9/6.5 | 9/6.5 | 9.5/7 |
| | ★4 Static external pressure | | Pa | 88-39-20 | 88-39-20 | 64-39-15 |
| | Drive | | | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | | Glass Fiber | Glass Fiber | Glass Fiber |
| Air Filter | | | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| Piping Connections | Liquid Pipes | | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) |
| | Gas Pipes | | mm | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) |
| | Drain Pipe | | mm | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) |
| Machine Weight | | | kg | 30 | 30 | 30 |
| ★7 Sound Level (H/L) (220V) | | | dBA | 37/32 | 37/32 | 38/32 |
| Safety Devices | | | | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor |
| Refrigerant Control | | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | | R410A M Series | R410A M Series | R410A M Series |
| Decoration Panel (Option) | Model | | | BYBS32DJW1 | BYBS32DJW1 | BYBS32DJW1 |
| | Panel Color | | | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) |
| | Dimensions: (H×W×D) | | mm | 55×650×500 | 55×650×500 | 55×650×500 |
| | Weight | | kg | 3 | 3 | 3 |
| Standard Accessories | | | | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers. |
| Drawing No. | | | | 3D039431 | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
★4 Static external pressure is changeable to change over the connectors inside electrical box, this pressure means "High static pressure-Standard -Low static pressure".
★5 Static external pressure is changeable to change over the connectors inside electrical box, this pressure means "High static pressure-Standard".
6 Capacities are net, including a deduction for cooling (an additional for heating) for indoor fan motor heat.
★7 Anechoic chamber conversion value, measured at a point 1.5m downward from the unit center. These values are normally somewhat higher during actual operation as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Ceiling Mounted Built-in Type

| Model | | | FXSQ40MVE | FXSQ50MVE | FXSQ63MVE |
|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 4,000 | 5,000 | 6,300 |
| | | Btu/h | 15,900 | 19,900 | 25,000 |
| | | kW | 4.7 | 5.8 | 7.3 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 4.5 | 5.6 | 7.1 |
| ★3 Heating Capacity | | kcal/h | 4,300 | 5,400 | 6,900 |
| | | Btu/h | 17,000 | 21,500 | 27,300 |
| | | kW | 5.0 | 6.3 | 8.0 |
| Casing | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | mm | 300×700×800 | 300×700×800 | 300×1,000×800 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 3×14×1.75 | 3×14×1.75 | 3×14×1.75 |
| | Face Area | $m^2$ | 0.132 | 0.132 | 0.221 |
| Fan | Model | | D18H2A | D18H2A | 2D18H2A |
| | Type | | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | W | 65×1 | 85×1 | 125×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 11.5/9 | 15/11 | 21/15.5 |
| | ★4 Static external pressure | Pa | 88-49-20 | 88-59-29 | 88-49-20 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Glass Fiber | Glass Fiber | Glass Fiber |
| Air Filter | | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| Piping Connections | Liquid Pipes | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) | ϕ9.5 (Flare Connection) |
| | Gas Pipes | mm | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) | ϕ15.9 (Flare Connection) |
| | Drain Pipe | mm | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) |
| Machine Weight | | kg | 30 | 31 | 41 |
| ★7 Sound Level (H/L) | | dBA | 38/32 | 41/36 | 42/35 |
| Safety Devices | | | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | R410A M Series | R410A M Series | R410A M Series |
| Decoration Panel (Option) | Model | | BYBS45DJW1 | BYBS45DJW1 | BYBS71DJW1 |
| | Panel Color | | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) |
| | Dimensions: (H×W×D) | mm | 55×800×500 | 55×800×500 | 55×1,100×500 |
| | Weight | kg | 3.5 | 3.5 | 4.5 |
| Standard Accessories | | | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers. |
| Drawing No. | | | 3D039431 | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
★4 Static external pressure is changeable to change over the connectors inside electrical box, this pressure means “High static pressure-Standard -Low static pressure”.
★5 Static external pressure is changeable to change over the connectors inside electrical box, this pressure means “High static pressure-Standard”.
6 Capacities are net, including a deduction for cooling (an additional for heating) for indoor fan motor heat.
★7 Anechoic chamber conversion value, measured at a point 1.5m downward from the unit center. These values are normally somewhat higher during actual operation as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Ceiling Mounted Built-in Type

| Model | | | FXSQ80MVE | FXSQ100MVE | FXSQ125MVE |
|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 8,000 | 10,000 | 12,500 |
| | | Btu/h | 31,800 | 39,700 | 49,600 |
| | | kW | 9.3 | 11.6 | 14.5 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 9.0 | 11.2 | 14.0 |
| ★3 Heating Capacity | | kcal/h | 8,600 | 10,800 | 13,800 |
| | | Btu/h | 34,100 | 42,700 | 54,600 |
| | | kW | 10.0 | 12.5 | 16.0 |
| Casing | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | mm | 300×1,400×800 | 300×1,400×800 | 300×1,400×800 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 3×14×1.75 | 3×14×1.75 | 3×14×1.75 |
| | Face Area | $m^2$ | 0.338 | 0.338 | 0.338 |
| Fan | Model | | 3D18H2A | 3D18H2A | 3D18H2A |
| | Type | | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | W | 225×1 | 225×1 | 225×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 27/21.5 | 28/22 | 38/28 |
| | ★5 Static external pressure | Pa | 113-82 | 107-75 | 78-39 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Glass Fiber | Glass Fiber | Glass Fiber |
| Air Filter | | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| Piping Connections | Liquid Pipes | mm | φ9.5 (Flare Connection) | φ9.5 (Flare Connection) | φ9.5 (Flare Connection) |
| | Gas Pipes | mm | φ15.9 (Flare Connection) | φ15.9 (Flare Connection) | φ15.9 (Flare Connection) |
| | Drain Pipe | mm | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) |
| Machine Weight | | kg | 51 | 51 | 52 |
| ★7 Sound Level (H/L) | | dBA | 43/37 | 43/37 | 46/41 |
| Safety Devices | | | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | R410A M Series | R410A M Series | R410A M Series |
| Decoration Panel (Option) | Model | | BYBS125DJW1 | BYBS125DJW1 | BYBS125DJW1 |
| | Panel Color | | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) |
| | Dimensions: (H×W×D) | mm | 55×1,500×500 | 55×1,500×500 | 55×1,500×500 |
| | Weight | kg | 6.5 | 6.5 | 6.5 |
| Standard Accessories | | | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws, Washers. |
| Drawing No. | | | 3D039431 | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
★4 Static external pressure is changeable to change over the connectors inside electrical box, this pressure means “High static pressure-Standard -Low static pressure”.
★5 Static external pressure is changeable to change over the connectors inside electrical box, this pressure means “High static pressure-Standard”.
6 Capacities are net, including a deduction for cooling (an additional for heating) for indoor fan motor heat.
★7 Anechoic chamber conversion value, measured at a point 1.5m downward from the unit center. These values are normally somewhat higher during actual operation as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Ceiling Mounted Duct Type

| Model | | | FXMQ40MVE | FXMQ50MVE | FXMQ63MVE | FXMQ80MVE |
|---|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 4,000 | 5,000 | 6,300 | 8,000 |
| | | Btu/h | 15,900 | 19,900 | 25,000 | 31,800 |
| | | kW | 4.7 | 5.8 | 7.3 | 9.3 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 4.5 | 5.6 | 7.1 | 9.0 |
| ★3 Heating Capacity | | kcal/h | 4,300 | 5,400 | 6,900 | 8,600 |
| | | Btu/h | 17,000 | 21,500 | 27,300 | 34,100 |
| | | kW | 5.0 | 6.3 | 8.0 | 10.0 |
| Casing | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | mm | 390×720×690 | 390×720×690 | 390×720×690 | 390×720×690 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 3×16×2.0 | 3×16×2.0 | 3×16×2.0 | 3×16×2.0 |
| | Face Area | $m^2$ | 0.181 | 0.181 | 0.181 | 0.181 |
| Fan | Model | | D11/2D3AB1VE | D11/2D3AB1VE | D11/2D3AB1VE | D11/2D3AA1VE |
| | Type | | Sirocco Fan | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | W | 100×1 | 100×1 | 100×1 | 160×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 14/11.5 | 14/11.5 | 14/11.5 | 19.5/16 |
| | | cfm | 494/406 | 494/406 | 494/406 | 688/565 |
| | External Static Pressure | Pa | 157/157-118/108 ★4 | 157/157-118/108 ★4 | 157/157-118/108 ★4 | 157/160-108/98 ★4 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Glass Fiber | Glass Fiber | Glass Fiber | Glass Fiber |
| Air Filter | | | ★5 | ★5 | ★5 | ★5 |
| Piping Connections | Liquid Pipes | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) | ϕ9.5 (Flare Connection) | ϕ9.5 (Flare Connection) |
| | Gas Pipes | mm | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) | ϕ15.9 (Flare Connection) | ϕ15.9 (Flare Connection) |
| | Drain Pipe | mm | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) |
| Machine Weight | | kg | 44 | 44 | 44 | 45 |
| ★7 Sound Level (H/L) | | dBA | 39/35 | 39/35 | 39/35 | 42/38 |
| Safety Devices | | | Fuse, Thermal Fuse for Fan Motor | Fuse, Thermal Fuse for Fan Motor | Fuse, Thermal Fuse for Fan Motor | Fuse, Thermal Fuse for Fan Motor |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | R410A M Series | R410A M Series | R410A M Series | R410A M Series |
| Standard Accessories | | | Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws. | Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws. | Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws. | Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws. |
| Drawing No. | | | 3D038814 | | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
★4 Static external pressure is changeable to change over the connectors inside electrical box, this pressure means "High static pressure-Standard".
★5 Air filter is not standard accessory, but please mount it in the duct system of the suction side. Select its colorimetric method (gravity method) 50% or more.
6 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★7 Anechoic chamber conversion value, measured at a point 1.5m downward from the unit center. These values are normally somewhat higher during actual operation as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Ceiling Mounted Duct Type

| Model | | | FXMQ100MVE | FXMQ125MVE | FXMQ200MVE | FXMQ250MVE |
|---|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 10,000 | 12,500 | 20,000 | 25,000 |
| | | Btu/h | 39,700 | 49,600 | 79,000 | 99,000 |
| | | kW | 11.6 | 14.5 | 23.0 | 28.8 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 11.2 | 14.0 | 22.4 | 28.0 |
| ★3 Heating Capacity | | kcal/h | 10,800 | 13,800 | 21,500 | 27,000 |
| | | Btu/h | 42,700 | 54,600 | 85,300 | 107,500 |
| | | kW | 12.5 | 16.0 | 25.0 | 31.5 |
| Casing | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | mm | 390×1,110×690 | 390×1,110×690 | 470×1,380×1,100 | 470×1,380×1,100 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 3×16×2.0 | 3×16×2.0 | 3×26×2.0 | 3×26×2.0 |
| | Face Area | $m^2$ | 0.319 | 0.319 | 0.68 | 0.68 |
| Fan | Model | | 2D11/2D3AG1VE | 2D11/2D3AF1VE | D13/4G2DA1×2 | D13/4G2DA1×2 |
| | Type | | Sirocco Fan | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | W | 270×1 | 430×1 | 380×2 | 380×2 |
| | Air Flow Rate (H/L) | $m^3$/min | 29/23 | 36/29 | 58/50 | 72/62 |
| | | cfm | 1,024/812 | 1,271/1,024 | 2,047/1,765 | 2,542/2,189 |
| | External Static Pressure | Pa | 157/172-98/98 ★4 | 191/245-152/172 ★4 | 221/270-132 ★4 | 270/191-147 ★4 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Glass Fiber | Glass Fiber | Glass Fiber | Glass Fiber |
| Air Filter | | | ★5 | ★5 | ★5 | ★5 |
| Piping Connections | Liquid Pipes | mm | ϕ9.5 (Flare Connection) | ϕ9.5 (Flare Connection) | ϕ9.5 (Flare Connection) | ϕ9.5 (Flare Connection) |
| | Gas Pipes | mm | ϕ15.9 (Flare Connection) | ϕ15.9 (Flare Connection) | ϕ19.1(Brazing Connection) | ϕ22.2 (Brazing Connection) |
| | Drain Pipe | mm | VP25 (External Dia. 32 Internal Dia. 25) | VP25 (External Dia. 32 Internal Dia. 25) | PS1B | PS1B |
| Machine Weight | | kg | 63 | 65 | 137 | 137 |
| ★7 Sound Level (H/L) | | dBA | 43/39 | 45/42 | 48/45 | 48/45 |
| Safety Devices | | | Fuse, Thermal Fuse for Fan Motor | Fuse, Thermal Fuse for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | R410A M Series | R410A M Series | R410A M Series | R410A M Series |
| Standard Accessories | | | Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws. | Operation Manual, Installation Manual, Drain Hose, Clamp Metal, Insulation for Fitting, Sealing Pads, Clamps, Screws. | Operation Manual, Installation Manual, Sealing Pads, Connection Pipes, Screws, Clamps. | Operation Manual, Installation Manual, Sealing Pads, Connection Pipes, Screws, Clamps. |
| Drawing No. | | | 3D038814 | | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
★4 Static external pressure is changeable to change over the connectors inside electrical box, this pressure means "High static pressure-Standard".
★5 Air filter is not standard accessory, but please mount it in the duct system of the suction side. Select its colorimetric method (gravity method) 50% or more.
6 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★7 Anechoic chamber conversion value, measured at a point 1.5m downward from the unit center. These values are normally somewhat higher during actual operation as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Ceiling Suspended Type

| Model | | | FXHQ32MVE | FXHQ63MVE | FXHQ100MVE |
|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 3,150 | 6,300 | 10,000 |
| | | Btu/h | 12,500 | 25,000 | 39,700 |
| | | kW | 3.7 | 7.3 | 11.6 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 3.6 | 7.1 | 11.2 |
| ★3 Heating Capacity | | kcal/h | 3,400 | 6,900 | 10,800 |
| | | Btu/h | 13,600 | 27,300 | 42,700 |
| | | kW | 4.0 | 8.0 | 12.5 |
| Casing Color | | | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) |
| Dimensions: (H×W×D) | | mm | 195×960×680 | 195×1,160×680 | 195×1,400×680 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 2×12×1.75 | 3×12×1.75 | 3×12×1.75 |
| | Face Area | $m^2$ | 0.182 | 0.233 | 0.293 |
| Fan | Model | | 3D12K1AA1 | 4D12K1AA1 | 3D12K2AA1 |
| | Type | | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | W | 62×1 | 62×1 | 130×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 12/10 | 17.5/14 | 25/19.5 |
| | | cfm | 424/353 | 618/494 | 883/688 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Glass Wool | Glass Wool | Glass Wool |
| Air Filter | | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| Piping Connections | Liquid Pipes | mm | ϕ6.4 (Flare Connection) | ϕ9.5 (Flare Connection) | ϕ9.5 (Flare Connection) |
| | Gas Pipes | mm | ϕ12.7 (Flare Connection) | ϕ15.9 (Flare Connection) | ϕ15.9 (Flare Connection) |
| | Drain Pipe | mm | VP20 (External Dia. 26 Internal Dia. 20) | VP20 (External Dia. 26 Internal Dia. 20) | VP20 (External Dia. 26 Internal Dia. 20) |
| Machine Weight | | kg | 24 | 28 | 33 |
| ★5 Sound Level (H/L) | | dBA | 36/31 | 39/34 | 45/37 |
| Safety Devices | | | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | R410A M Series | R410A M Series | R410A M Series |
| Standard Accessories | | | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Clamps, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Clamps, Washers. | Operation Manual, Installation Manual, Paper Pattern for Installation, Drain Hose, Clamp Metal, Insulation for Fitting, Clamps, Washers. |
| Drawing No. | | | 3D035297 | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Wall Mounted Type

| Model | | | FXAQ20MVE | FXAQ25MVE | FXAQ32MVE |
|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 2,000 | 2,500 | 3,150 |
| | | Btu/h | 7,900 | 9,900 | 12,500 |
| | | kW | 2.3 | 2.9 | 3.7 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 2.2 | 2.8 | 3.6 |
| ★3 Heating Capacity | | kcal/h | 2,200 | 2,800 | 3,400 |
| | | Btu/h | 8,500 | 10,900 | 13,600 |
| | | kW | 2.5 | 3.2 | 4.0 |
| Casing Color | | | White (10Y9/0.5) | White (10Y9/0.5) | White (10Y9/0.5) |
| Dimensions: (H×W×D) | | mm | 290×795×230 | 290×795×230 | 290×795×230 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 2×14×1.4 | 2×14×1.4 | 2×14×1.4 |
| | Face Area | $m^2$ | 0.161 | 0.161 | 0.161 |
| Fan | Model | | — | — | — |
| | Type | | Cross Flow Fan | Cross Flow Fan | Cross Flow Fan |
| | Motor Output × Number of Units | W | 40×1 | 40×1 | 40×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 7.5/4.5 | 8/5 | 9/5.5 |
| | | cfm | 265/159 | 282/177 | 318/194 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Foamed Polystyrene / Foamed Polyethylene | Foamed Polystyrene / Foamed Polyethylene | Foamed Polystyrene / Foamed Polyethylene |
| Air Filter | | | Resin Net (Washable) | Resin Net (Washable) | Resin Net (Washable) |
| Piping Connections | Liquid Pipes | mm | φ6.4 (Flare Connection) | φ6.4 (Flare Connection) | φ6.4 (Flare Connection) |
| | Gas Pipes | mm | φ12.7 (Flare Connection) | φ12.7 (Flare Connection) | φ12.7 (Flare Connection) |
| | Drain Pipe | mm | VP13 (External Dia. 18 Internal Dia. 13) | VP13 (External Dia. 18 Internal Dia. 13) | VP13 (External Dia. 18 Internal Dia. 13) |
| Machine Weight | | kg | 11 | 11 | 11 |
| ★5 Sound Level (H/L) | | dBA | 35/29 | 36/29 | 37/29 |
| Safety Devices | | | Fuse | Fuse | Fuse |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | R410A M Series | R410A M Series | R410A M Series |
| Standard Accessories | | | Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws. | Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws. | Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws. |
| Drawing No. | | | | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length:7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Wall Mounted Type

| Model | | | FXAQ40MVE | FXAQ50MVE | FXAQ63MVE |
|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 4,000 | 5,000 | 6,300 |
| | | Btu/h | 15,900 | 19,900 | 25,000 |
| | | kW | 4.7 | 5.8 | 7.3 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 4.5 | 5.6 | 7.1 |
| ★3 Heating Capacity | | kcal/h | 4,300 | 5,400 | 6,900 |
| | | Btu/h | 17,000 | 21,500 | 27,300 |
| | | kW | 5.0 | 6.3 | 8.0 |
| Casing Color | | | White (B-272) | White (B-272) | White (B-272) |
| Dimensions: (H×W×D) | | mm | 290×1,050×230 | 290×1,050×230 | 290×1,050×230 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 2×14×1.4 | 2×14×1.4 | 2×14×1.4 |
| | Face Area | $m^2$ | 0.161 | 0.161 | 0.161 |
| Fan | Model | | — | — | — |
| | Type | | Cross Flow Fan | Cross Flow Fan | Cross Flow Fan |
| | Motor Output × Number of Units | W | 43×1 | 43×1 | 43×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 12/9 | 15/12 | 19/14 |
| | | cfm | 424/318 | 530/424 | 671/494 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Foamed Polystyrene / Foamed Polyethylene | Foamed Polystyrene / Foamed Polyethylene | Foamed Polystyrene / Foamed Polyethylene |
| Air Filter | | | Resin Net (Washable) | Resin Net (Washable) | Resin Net (Washable) |
| Piping Connections | Liquid Pipes | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) | ϕ9.5 (Flare Connection) |
| | Gas Pipes | mm | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) | ϕ15.9 (Flare Connection) |
| | Drain Pipe | mm | VP13 | VP13 | VP13 |
| Machine Weight | | kg | 14 | 14 | 14 |
| ★5 Sound Level (H/L) | | dBA | 39/34 | 42/36 | 46/39 |
| Safety Devices | | | Fuse | Fuse | Fuse |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable outdoor unit | | | R410A M Series | R410A M Series | R410A M Series |
| Standard Accessories | | | Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws. | Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws. | Operation Manual, Installation Manual, Installation Panel, Paper Pattern for Installation, Insulation Tape, Clamps, screws. |
| Drawing No. | | | | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp; 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured under JISB8616 conditions. During actual operation, these values are normally somewhat higher as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Floor Standing Type

| Model | | | FXLQ20MVE | FXLQ25MVE | FXLQ32MVE |
|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 2,000 | 2,500 | 3,150 |
| | | Btu/h | 7,900 | 9,900 | 12,500 |
| | | kW | 2.3 | 2.9 | 3.7 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 2.2 | 2.8 | 3.6 |
| ★3 Heating Capacity | | kcal/h | 2,200 | 2,800 | 3,400 |
| | | Btu/h | 8,500 | 10,900 | 13,600 |
| | | kW | 2.5 | 3.2 | 4.0 |
| Casing Color | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | mm | 600×1,000×222 | 600×1,000×222 | 600×1,140×222 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 3×14×1.5 | 3×14×1.5 | 3×14×1.5 |
| | Face Area | $m^2$ | 0.159 | 0.159 | 0.200 |
| Fan | Model | | D14B20 | D14B20 | 2D14B13 |
| | Type | | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | W | 15×1 | 15×1 | 25×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 7/6 | 7/6 | 8/6 |
| | | cfm | 247/212 | 247/212 | 282/212 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Glass Fiber/ Urethane Foam | Glass Fiber/ Urethane Foam | Glass Fiber/ Urethane Foam |
| Air Filter | | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| Piping Connections | Liquid Pipes | mm | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) | ϕ6.4 (Flare Connection) |
| | Gas Pipes | mm | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) | ϕ12.7 (Flare Connection) |
| | Drain Pipe | mm | ϕ21 O.D (Vinyl Chloride) | ϕ21 O.D (Vinyl Chloride) | ϕ21 O.D (Vinyl Chloride) |
| Machine Weight | | kg | 25 | 25 | 30 |
| ★5 Sound Level (H/L) | | dBA | 35/32 | 35/32 | 35/32 |
| Safety Devices | | | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable Outdoor Unit | | | R410A M Series | R410A M Series | R410A M Series |
| Standard Accessories | | | Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw. | Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw. | Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw. |
| Drawing No. | | | 3D038816 | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured at a point 1.5 m in front of the unit at a height of 1.5 m. During actual operation, these values are normally somewhat higher as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Floor Standing Type

| Model | | | FXLQ40MVE | FXLQ50MVE | FXLQ63MVE |
|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 4,000 | 5,000 | 6,300 |
| | | Btu/h | 15,900 | 19,900 | 25,000 |
| | | kW | 4.7 | 5.8 | 7.3 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 4.5 | 5.6 | 7.1 |
| ★3 Heating Capacity | | kcal/h | 4,300 | 5,400 | 6,900 |
| | | Btu/h | 17,000 | 21,500 | 27,300 |
| | | kW | 5.0 | 6.3 | 8.0 |
| Casing Color | | | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) | Ivory White (5Y7.5/1) |
| Dimensions: (H×W×D) | | mm | 600×1,140×222 | 600×1,420×222 | 600×1,420×222 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 3×14×1.5 | 3×14×1.5 | 3×14×1.5 |
| | Face Area | $m^2$ | 0.200 | 0.282 | 0.282 |
| Fan | Model | | 2D14B13 | 2D14B20 | 2D14B20 |
| | Type | | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | W | 25×1 | 35×1 | 35×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 11/8.5 | 14/11 | 16/12 |
| | | cfm | 388/300 | 494/388 | 565/424 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Glass Fiber/ Urethane Foam | Glass Fiber/ Urethane Foam | Glass Fiber/ Urethane Foam |
| Air Filter | | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| Piping Connections | Liquid Pipes | mm | φ6.4 (Flare Connection) | φ6.4 (Flare Connection) | φ9.5 (Flare Connection) |
| | Gas Pipes | mm | φ12.7 (Flare Connection) | φ12.7 (Flare Connection) | φ15.9 (Flare Connection) |
| | Drain Pipe | mm | φ21 O.D (Vinyl Chloride) | φ21 O.D (Vinyl Chloride) | φ21 O.D (Vinyl Chloride) |
| Machine Weight | | kg | 30 | 36 | 36 |
| ★5 Sound Level (H/L) | | dBA | 38/33 | 39/34 | 40/35 |
| Safety Devices | | | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable Outdoor Unit | | | R410A M Series | R410A M Series | R410A M Series |
| Standard Accessories | | | Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw. | Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw. | Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw. |
| Drawing No. | | | 3D038816 | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured at a point 1.5 m in front of the unit at a height of 1.5 m. During actual operation, these values are normally somewhat higher as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Concealed Floor Standing Type

| Model | | | FXNQ20MVE | FXNQ25MVE | FXNQ32MVE |
|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 2,000 | 2,500 | 3,150 |
| | | Btu/h | 7,900 | 9,900 | 12,500 |
| | | kW | 2.3 | 2.9 | 3.7 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 2.2 | 2.8 | 3.6 |
| ★3 Heating Capacity | | kcal/h | 2,200 | 2,800 | 3,400 |
| | | Btu/h | 8,500 | 10,900 | 13,600 |
| | | kW | 2.5 | 3.2 | 4.0 |
| Casing Color | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | mm | 610×930×220 | 610×930×220 | 610×1,070×220 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 3×14×1.5 | 3×14×1.5 | 3×14×1.5 |
| | Face Area | $m^2$ | 0.159 | 0.159 | 0.200 |
| Fan | Model | | D14B20 | D14B20 | 2D14B13 |
| | Type | | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | W | 15×1 | 15×1 | 25×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 7/6 | 7/6 | 8/6 |
| | | cfm | 247/212 | 247/212 | 282/212 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Glass Fiber/ Urethane Foam | Glass Fiber/ Urethane Foam | Glass Fiber/ Urethane Foam |
| Air Filter | | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| Piping Connections | Liquid Pipes | mm | φ6.4 (Flare Connection) | φ6.4 (Flare Connection) | φ6.4 (Flare Connection) |
| | Gas Pipes | mm | φ12.7 (Flare Connection) | φ12.7 (Flare Connection) | φ12.7 (Flare Connection) |
| | Drain Pipe | mm | φ21 O.D (Vinyl Chloride) | φ21 O.D (Vinyl Chloride) | φ21 O.D (Vinyl Chloride) |
| Machine Weight | | kg | 19 | 19 | 23 |
| ★5 Sound Level (H/L) | | dBA | 35/32 | 35/32 | 35/32 |
| Safety Devices | | | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable Outdoor Unit | | | R410A M Series | R410A M Series | R410A M Series |
| Standard Accessories | | | Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw. | Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw. | Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw. |
| Drawing No. | | | 3D038817 | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured at a point 1.5 m in front of the unit at a height of 1.5 m. During actual operation, these values are normally somewhat higher as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

## Concealed Floor Standing Type

| Model | | | FXNQ40MVE | FXNQ50MVE | FXNQ63MVE |
|---|---|---|---|---|---|
| ★1 Cooling Capacity (19.5°CWB) | | kcal/h | 4,000 | 5,000 | 6,300 |
| | | Btu/h | 15,900 | 19,900 | 25,000 |
| | | kW | 4.7 | 5.8 | 7.3 |
| ★2 Cooling Capacity (19.0°CWB) | | kW | 4.5 | 5.6 | 7.1 |
| ★3 Heating Capacity | | kcal/h | 4,300 | 5,400 | 6,900 |
| | | Btu/h | 17,000 | 21,500 | 27,300 |
| | | kW | 5.0 | 6.3 | 8.0 |
| Casing Color | | | Galvanized Steel Plate | Galvanized Steel Plate | Galvanized Steel Plate |
| Dimensions: (H×W×D) | | mm | 610×1,070×220 | 610×1,350×220 | 610×1,350×220 |
| Coil (Cross Fin Coil) | Rows×Stages×Fin Pitch | mm | 3×14×1.5 | 3×14×1.5 | 3×14×1.5 |
| | Face Area | $m^2$ | 0.200 | 0.282 | 0.282 |
| Fan | Model | | 2D14B13 | 2D14B20 | 2D14B20 |
| | Type | | Sirocco Fan | Sirocco Fan | Sirocco Fan |
| | Motor Output × Number of Units | W | 25×1 | 35×1 | 35×1 |
| | Air Flow Rate (H/L) | $m^3$/min | 11/8.5 | 14/11 | 16/12 |
| | | cfm | 388/300 | 494/388 | 565/424 |
| | Drive | | Direct Drive | Direct Drive | Direct Drive |
| Temperature Control | | | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating | Microprocessor Thermostat for Cooling and Heating |
| Sound Absorbing Thermal Insulation Material | | | Glass Fiber / Urethane Foam | Glass Fiber / Urethane Foam | Glass Fiber / Urethane Foam |
| Air Filter | | | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) | Resin Net (with Mold Resistant) |
| Piping Connections | Liquid Pipes | mm | φ6.4 (Flare Connection) | φ6.4 (Flare Connection) | φ9.5 (Flare Connection) |
| | Gas Pipes | mm | φ12.7 (Flare Connection) | φ12.7 (Flare Connection) | φ15.9 (Flare Connection) |
| | Drain Pipe | mm | φ21 O.D (Vinyl Chloride) | φ21 O.D (Vinyl Chloride) | φ21 O.D (Vinyl Chloride) |
| Machine Weight | | kg | 23 | 27 | 27 |
| ★5 Sound Level (H/L) | | dBA | 38/33 | 39/34 | 40/35 |
| Safety Devices | | | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor | Fuse, Thermal Protector for Fan Motor |
| Refrigerant Control | | | Electronic Expansion Valve | Electronic Expansion Valve | Electronic Expansion Valve |
| Connectable Outdoor Unit | | | R410A M Series | R410A M Series | R410A M Series |
| Standard Accessories | | | Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw. | Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw. | Operation Manual, Installation Manual, Insulation for Fitting, Drain Hose, Clamps, Screws, Washers, Level Adjustment Screw. |
| Drawing No. | | | 3D038817 | | |

**Notes:**

★1 Indoor temp. : 27°CDB, 19.5°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★2 Indoor temp. : 27°CDB, 19.0°CWB / outdoor temp.: 35°CDB / Equivalent piping length: 7.5m, level difference: 0m.
★3 Indoor temp. : 20°CDB / outdoor temp.: 7°CDB, 6°CWB / Equivalent piping length; 7.5m, level difference; 0m. (Heat pump only)
4 Capacities are net, including a deduction for cooling (an addition for heating) for indoor fan motor heat.
★5 Anechoic chamber conversion value, measured at a point 1.5 m in front of the unit at a height of 1.5 m. During actual operation, these values are normally somewhat higher as a result of installation conditions.

| Conversion Formulae |
|---|
| kcal/h=kW×860<br>Btu/h=kW×3414<br>cfm=$m^3$/min×35.3 |

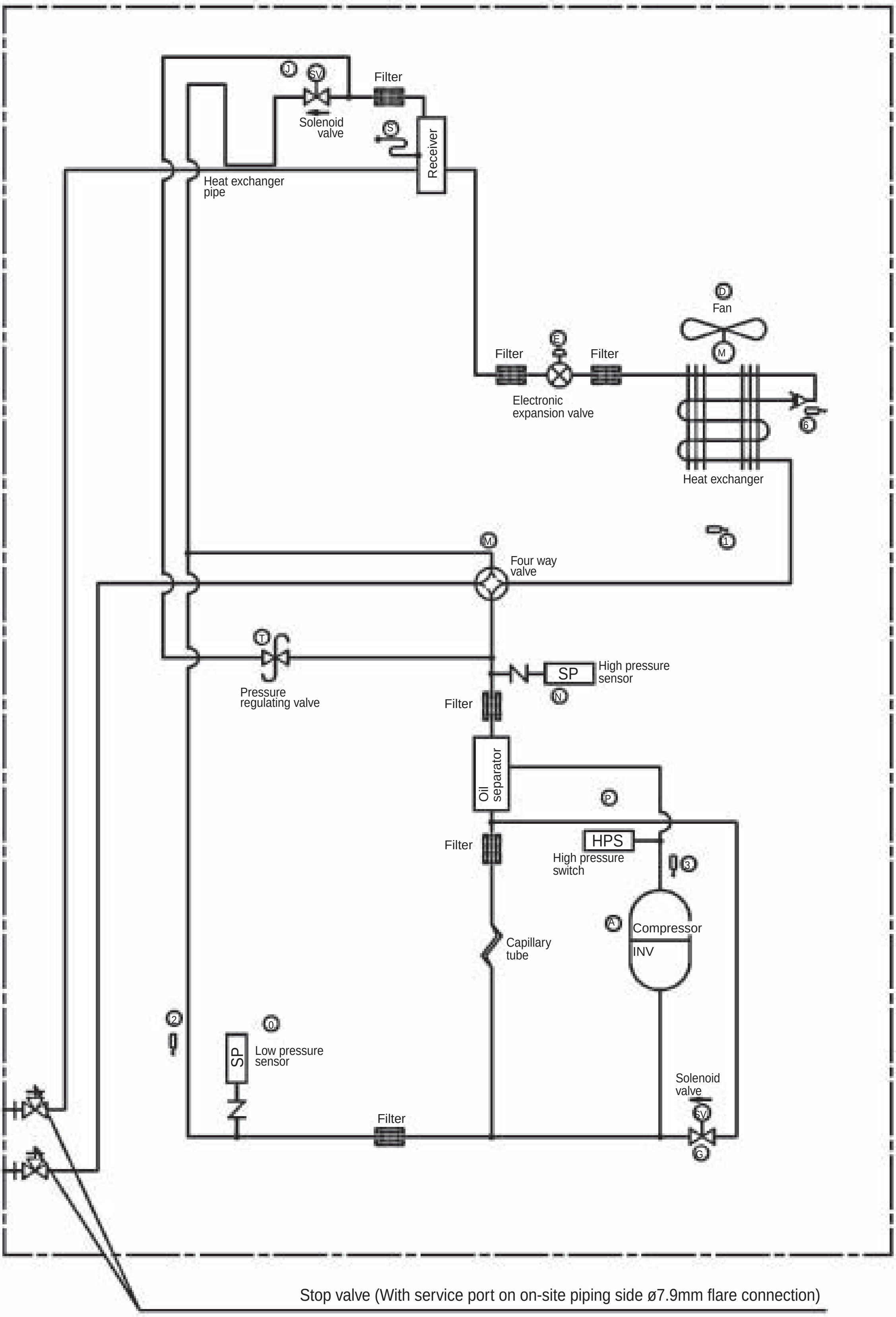
# Part 3
# Refrigerant Circuit

# 1. Refrigerant Circuit

## 1.1 RXYQ5M

| No. in refrigerant system diagram | Symbol | Name | Major Function |
|---|---|---|---|
| A | M1C | Inverter compressor (INV) | Inverter compressor is operated on frequencies between 52 Hz and 210 Hz by using the inverter. The number of operating steps is as follows when Inverter compressor is operated.<br>RXYQ5M : 20 steps |
| D | M1F | Inverter fan | Since the system is of air heat exchanging type, the fan is operated at 8-step rotation speed by using the inverter. |
| E | Y1E | Electronic expansion valve (Main: EV1) | While in heating operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant. |
| G | Y1S | Solenoid valve (Hot gas: SVP) | Used to prevent the low pressure from transient falling. |
| J | Y4S | Solenoid valve (Receiver gas discharging: SV) | Used to collect refrigerant to receiver. |
| M | Y7S | 4-way valve | Used to switch the operation mode between cooling and heating. |
| N | S1NPH | High pressure sensor | Used to detect high pressure. |
| O | S1NPL | Low pressure sensor | Used to detect low pressure. |
| P | S1PH | HP pressure switch (For INV compressor) | In order to prevent the increase of high pressure when a malfunction occurs, this switch is activated at high pressure of 3.8 MPA or more to stop the compressor operation. |
| S | — | Fusible plug | In order to prevent the increase of pressure when abnormal heating is caused by fire or others, the fusible part of the plug is molten at a temperature of 70 to 75°C to release the pressure into the atmosphere. |
| T | — | Pressure regulating valve 1 (Receiver to discharge pipe) | This valve opens at a pressure of 2 to 2.7 MPa for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage. |
| 1 | R1T | Thermistor (Outdoor air: Ta) | Used to detect outdoor temperature, correct discharge pipe temperature, and others. |
| 2 | R2T | Thermistor (Suction pipe: Ts) | Used to detect suction pipe temperature, keep the suction superheated degree constant in heating operation, and others. |
| 3 | R31T | Thermistor (INV discharge pipe: Tdi) | Used to detect discharge pipe temperature, make the temperature protection control of compressor, and others. |
| 6 | R4T | Thermistor (Heat exchanger deicer: Tb) | Used to detect liquid pipe temperature of air heat exchanger, determine defrosting operation, and others. |

## RXYQ5M

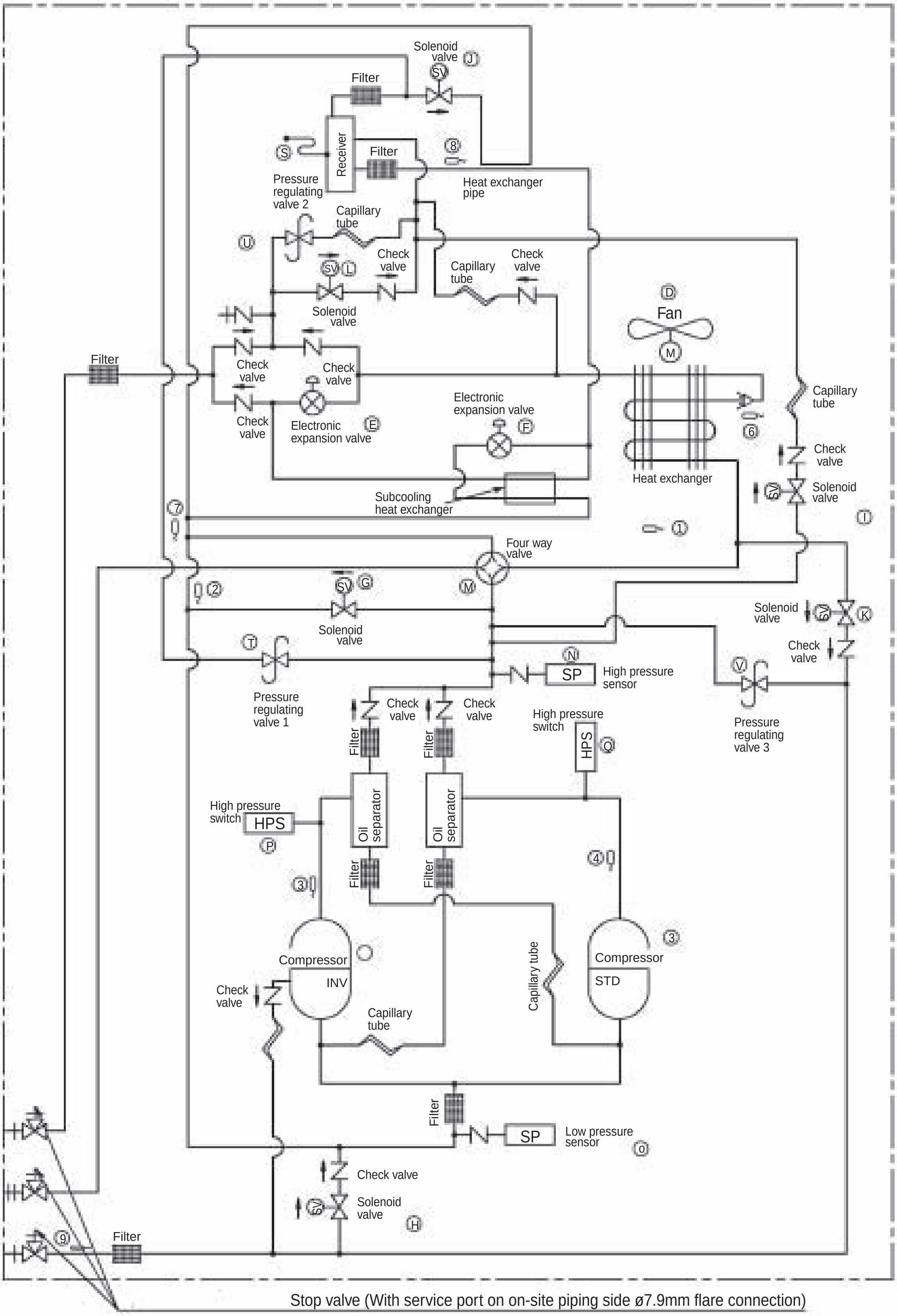


J
SV
Filter
Solenoid valve
S
Receiver
Heat exchanger pipe
D
Fan
M
E
Filter
Filter
Electronic expansion valve
6
Heat exchanger
M
1
Four way valve
T
Pressure regulating valve
SP
High pressure sensor
N
Filter
Oil separator
P
Filter
HPS
High pressure switch
3
A
Compressor
INV
Capillary tube
2
0
SP
Low pressure sensor
Solenoid valve
SV
G
Filter
Stop valve (With service port on on-site piping side ø7.9mm flare connection)

# 1.2 RXYQ8, 10, 12M

| No. in refrigerant system diagram | Symbol | Name | Major Function |
|---|---|---|---|
| A | M1C | Inverter compressor (INV) | Inverter compressor is operated on frequencies between 52 Hz and 210 Hz by using the inverter, while Standard compressor is operated with commercial power supply only. The number of operating steps is as follows when Inverter compressor is operated in combination with Standard compressor.<br>RXYQ8, 10, 12M: 29 steps |
| B | M2C | Standard compressor 1 (STD1) | |
| D | M1F | Inverter fan | Since the system is of air heat exchanging type, the fan is operated at 8-step rotation speed by using the inverter. |
| E | Y1E | Electronic expansion valve (Main: EV1) | While in heating operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant. |
| F | Y2E | Electronic expansion valve (Subcool: EV2) | PI control is applied to keep the outlet superheated degree of subcooling heat exchanger constant. |
| G | Y1S | Solenoid valve (Hot gas: SVP) | Used to prevent the low pressure from transient falling. |
| H | Y2S | Solenoid valve (Oil equalization: SVO) | Used for oil equalizing among outdoor units in multiple-outdoor-unit system. |
| I | Y3S | Solenoid valve (Receiver gas charging: SVL) | Used to maintain high pressure while in cooling operation at low outdoor temperature. And also used to prevent the accumulation of refrigerant in non-operating outdoor units in the case of multiple-outdoor-unit system. |
| J | Y4S | Solenoid valve (Receiver gas discharging: SV) | Used to collect refrigerant to receiver. |
| K | Y5S | Solenoid valve (Non-operating unit gas discharging SVSG) | Used to prevent the accumulation of refrigerant in non-operating outdoor units in the case of multiple-outdoor-unit system. |
| L | Y6S | Solenoid valve Non-operating unit liquid pipe closing: SVSL) | Used to prevent the accumulation of refrigerant in non-operating outdoor units in the case of multi-outdoor unit system. |
| M | Y7S | 4-way valve | Used to switch the operation mode between cooling and heating. |
| N | S1NPH | High pressure sensor | Used to detect high pressure. |
| O | S1NPL | Low pressure sensor | Used to detect low pressure. |
| P | S1PH | HP pressure switch (For INV compressor) | In order to prevent the increase of high pressure when a malfunction occurs, this switch is activated at high pressure of 3.8 MPA or more to stop the compressor operation. |
| Q | S2PH | HP pressure switch (For STD compressor 2) | |
| S | — | Fusible plug | In order to prevent the increase of pressure when abnormal heating is caused by fire or others, the fusible part of the plug is molten at a temperature of 70 to 75°C to release the pressure into the atmosphere. |
| T | — | Pressure regulating valve 1 (Receiver to discharge pipe) | This valve opens at a pressure of 2 to 2.7 MPa for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage. |
| U | — | Pressure regulating valve 2 (Liquid pipe to receiver) | |
| V | — | Pressure regulating valve 3 (Equalizing pipe to discharge pipe) | |
| 1 | R1T | Thermistor (Outdoor air: Ta) | Used to detect outdoor temperature, correct discharge pipe temperature, and others. |
| 2 | R2T | Thermistor (Suction pipe: Ts) | used to detect suction pipe temperature, keep the suction superheated degree constant in heating operation, and others. |
| 3 | R31T | Thermistor (INV discharge pipe: Tdi) | used to detect discharge pipe temperature, make the temperature protection control of compressor, and others. |
| 4 | R32T | Thermistor (STD1 discharge pipe: Tds1) | |
| 5 | R33T | Thermistor (STD2 discharge pipe: Tds2) | |
| 6 | R4T | Thermistor (Heat exchanger deicer: Tb) | Used to detect liquid pipe temperature of air heat exchanger, determine defrosting operation, and others. |
| 7 | R5T | Thermistor (Subcooling heat exchanger gas pipe: Tsh) | Used to detect gas pipe temperature on the evaporation side of subcooling heat exchanger, keep the superheated degree at the outlet of subcooling heat exchanger constant, and others. |
| 8 | R6T | Thermistor (Receiver outlet liquid pipe: Tl) | Used to detect receiver outlet liquid pipe temperature, prevent the drift between outdoor units while in heating operation in the case of multiple-outdoor-unit system, and others. |
| 9 | R7T | Thermistor (Oil equalizing pipe: To) | Used to detect equalizing pipe temperature, opening/closing of the equalizing pipe stop valve, and others. |

## RXYQ8, 10, 12M

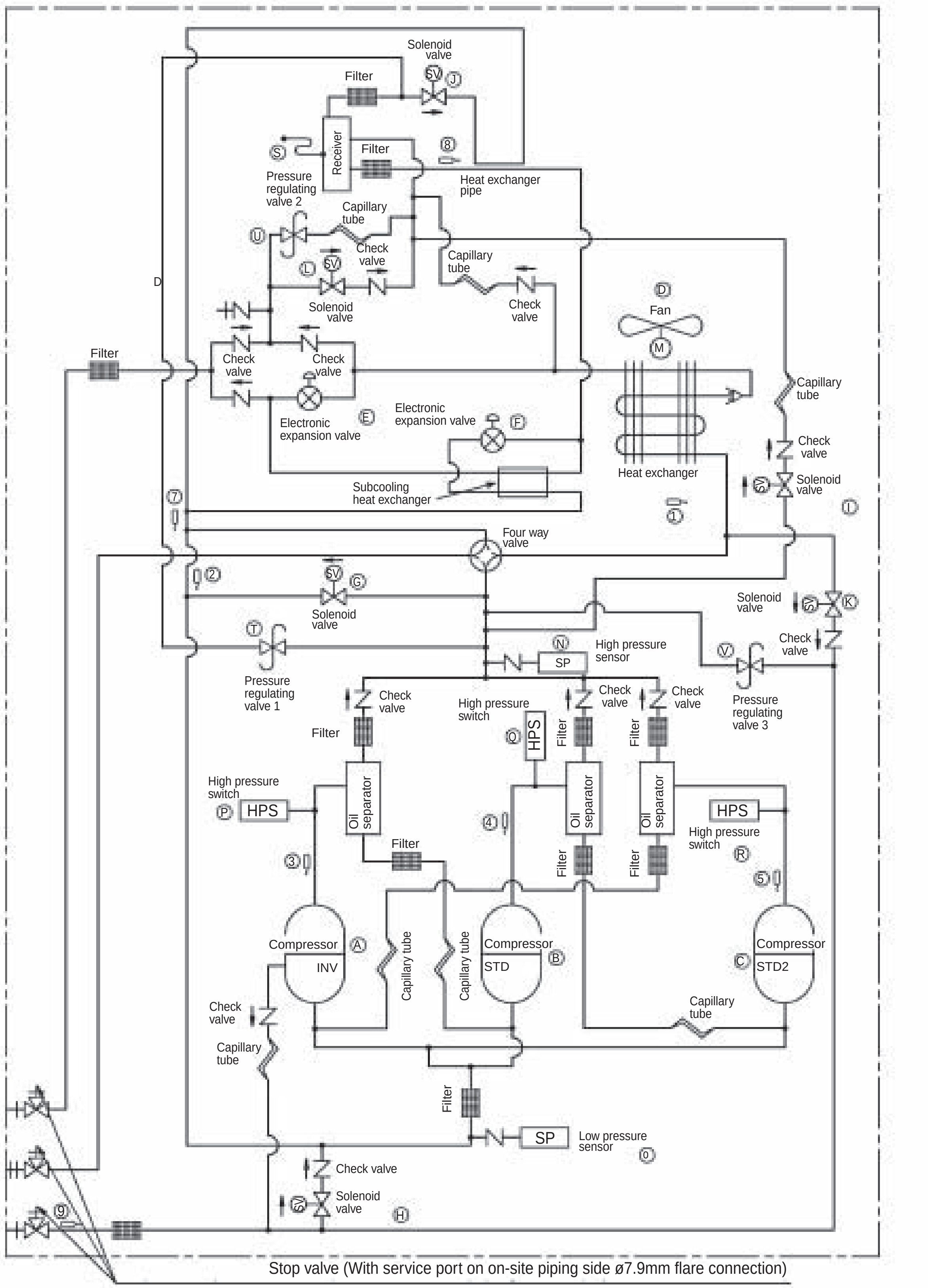



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# 1.3 RXYQ14, 16M

| No. in refrigerant system diagram | Symbol | Name | Major Function |
|---|---|---|---|
| A | M1C | Inverter compressor (INV) | Inverter compressor is operated on frequencies between 52 Hz and 210 Hz by using the inverter, while Standard compressor is operated with commercial power supply only. The number of operating steps is as follows when Inverter compressor is operated in combination with Standard compressor.<br>RXYQ14, 16M: 35 steps |
| B | M2C | Standard compressor 1 (STD1) | |
| C | M3C | Standard compressor 1 (STD2) | |
| D | M1F | Inverter fan | Since the system is of air heat exchanging type, the fan is operated at 8-step rotation speed by using the inverter. |
| E | Y1E | Electronic expansion valve (Main: EV1) | While in heating operation, PI control is applied to keep the outlet superheated degree of air heat exchanger constant. |
| F | Y2E | Electronic expansion valve (Subcool: EV2) | PI control is applied to keep the outlet superheated degree of subcooling heat exchanger constant. |
| G | Y1S | Solenoid valve (Hot gas: SVP) | Used to prevent the low pressure from transient falling. |
| H | Y2S | Solenoid valve (Oil equalization: SVO) | Used for oil equalizing among outdoor units in multiple-outdoor-unit system. |
| I | Y3S | Solenoid valve (Receiver gas charging: SVL) | Used to maintain high pressure while in cooling operation at low outdoor temperature. And also used to prevent the accumulation of refrigerant in non-operating outdoor units in the case of multiple-outdoor-unit system. |
| J | Y4S | Solenoid valve (Receiver gas discharging: SV) | Used to collect refrigerant to receiver. |
| K | Y5S | Solenoid valve (Non-operating unit gas discharging SVSG) | Used to prevent the accumulation of refrigerant in non-operating outdoor units in the case of multiple-outdoor-unit system. |
| L | Y6S | Solenoid valve Non-operating unit liquid pipe closing: SVSL) | Used to prevent the accumulation of refrigerant in non-operating outdoor units in the case of multi-outdoor unit system. |
| M | Y7S | 4-way valve | Used to switch the operation mode between cooling and heating. |
| N | S1NPH | High pressure sensor | Used to detect high pressure. |
| O | S1NPL | Low pressure sensor | Used to detect low pressure. |
| P | S1PH | HP pressure switch (For INV compressor) | In order to prevent the increase of high pressure when a malfunction occurs, this switch is activated at high pressure of 3.8 MPA or more to stop the compressor operation. |
| Q | S2PH | HP pressure switch (For STD compressor 2) | |
| R | S3PH | HP pressure switch (For STD compressor 1) | |
| S | — | Fusible plug | In order to prevent the increase of pressure when abnormal heating is caused by fire or others, the fusible part of the plug is molten at a temperature of 70 to 75°C to release the pressure into the atmosphere. |
| T | — | Pressure regulating valve 1 (Receiver to discharge pipe) | This valve opens at a pressure of 2 to 2.7 MPa for prevention of pressure increase, thus resulting in no damage of functional parts due to the increase of pressure in transportation or storage. |
| U | — | Pressure regulating valve 2 (Liquid pipe to receiver) | |
| V | — | Pressure regulating valve 3 (Equalizing pipe to discharge pipe) | |
| 1 | R1T | Thermistor (Outdoor air: Ta) | Used to detect outdoor temperature, correct discharge pipe temperature, and others. |
| 2 | R2T | Thermistor (Suction pipe: Ts) | used to detect suction pipe temperature, keep the suction superheated degree constant in heating operation, and others. |
| 3 | R31T | Thermistor (INV discharge pipe: Tdi) | used to detect discharge pipe temperature, make the temperature protection control of compressor, and others. |
| 4 | R32T | Thermistor (STD1 discharge pipe: Tds1) | |
| 5 | R33T | Thermistor (STD2 discharge pipe: Tds2) | |
| 6 | R4T | Thermistor (Heat exchanger deicer: Tb) | Used to detect liquid pipe temperature of air heat exchanger, determine defrosting operation, and others. |
| 7 | R5T | Thermistor (Subcooling heat exchanger gas pipe: Tsh) | Used to detect gas pipe temperature on the evaporation side of subcooling heat exchanger, keep the superheated degree at the outlet of subcooling heat exchanger constant, and others. |
| 8 | R6T | Thermistor (Receiver outlet liquid pipe: Tl) | Used to detect receiver outlet liquid pipe temperature, prevent the drift between outdoor units while in heating operation in the case of multiple-outdoor-unit system, and others. |
| 9 | R7T | Thermistor (Oil equalizing pipe: To) | Used to detect equalizing pipe temperature, opening/closing of the equalizing pipe stop valve, and others. |

## RXYQ14, 16M

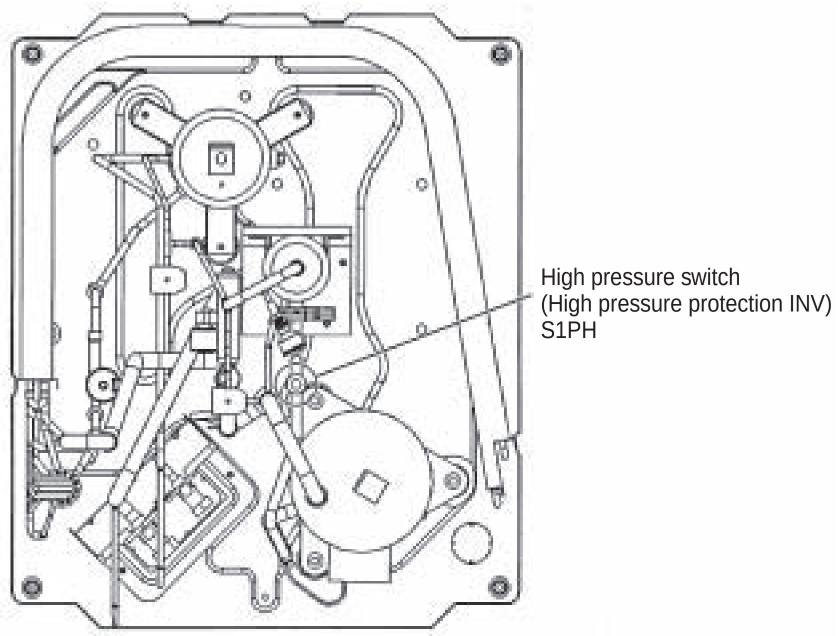



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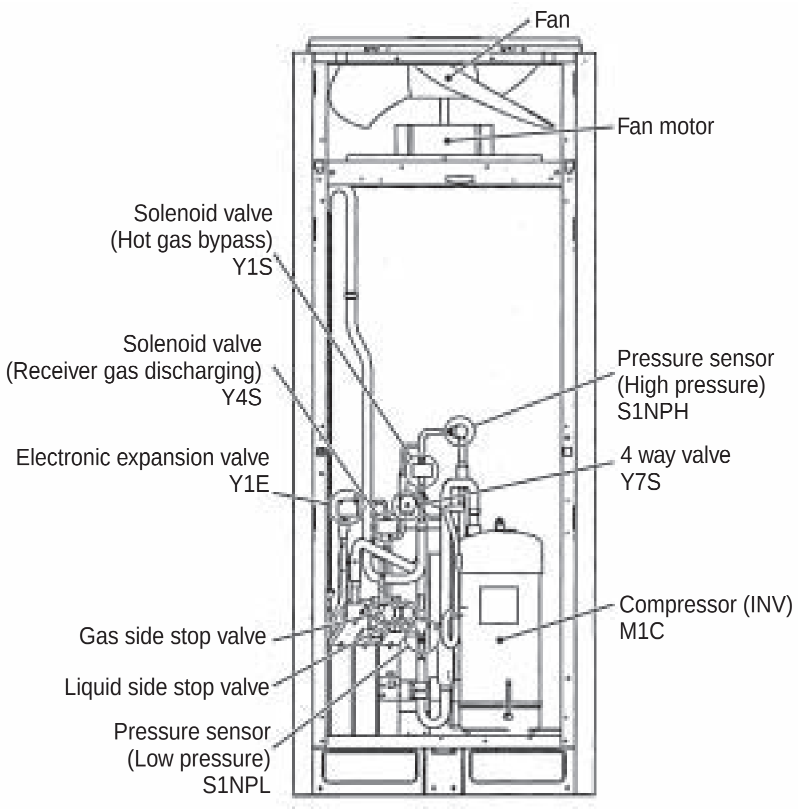
# 2. Functional Parts Layout

## 2.1 RXYQ5M

**Plan**

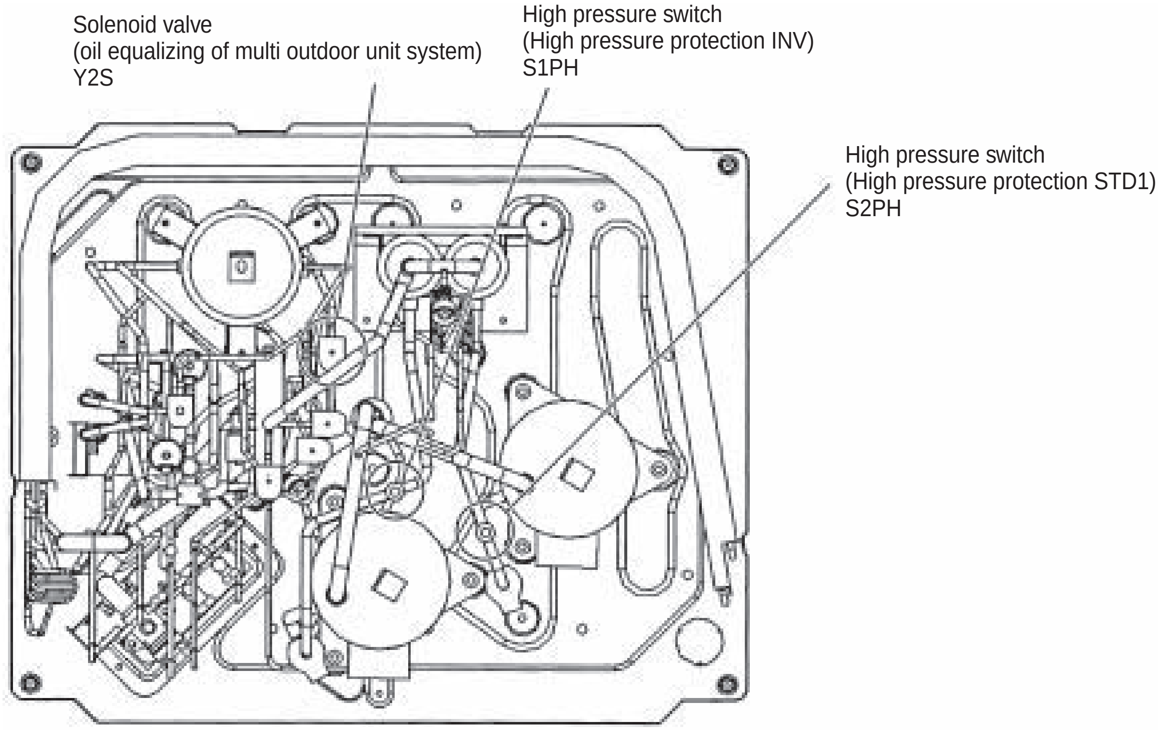



**Front View**

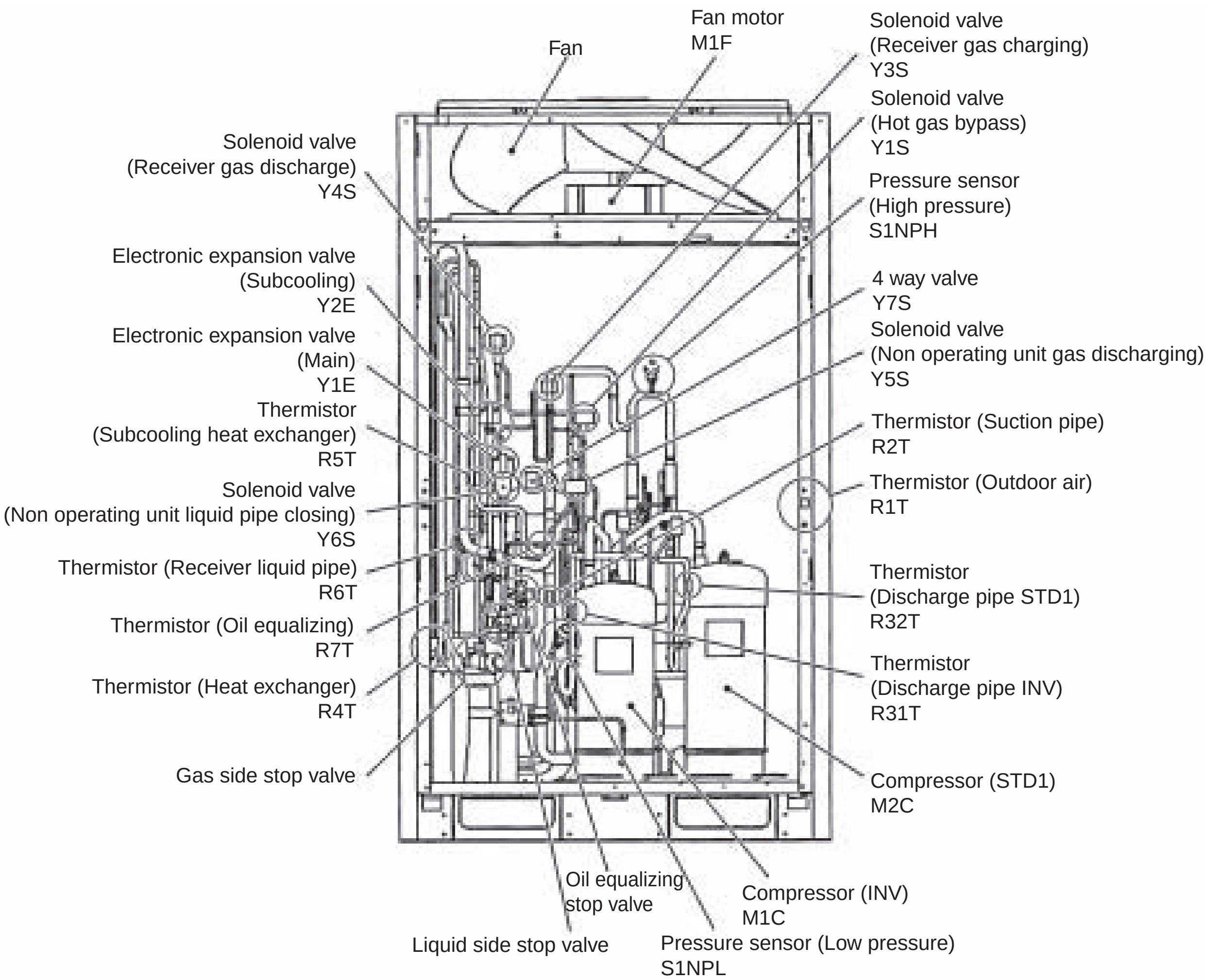


## 2.2 RXYQ8, 10, 12M

### Plan

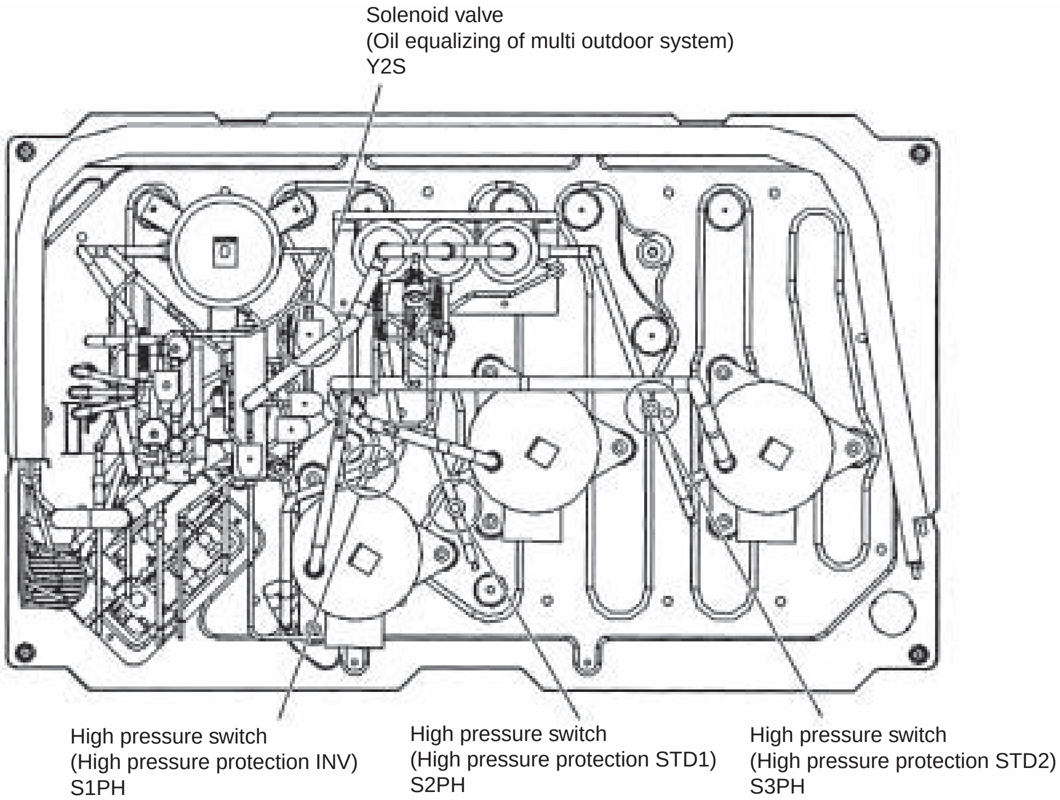



### Front View

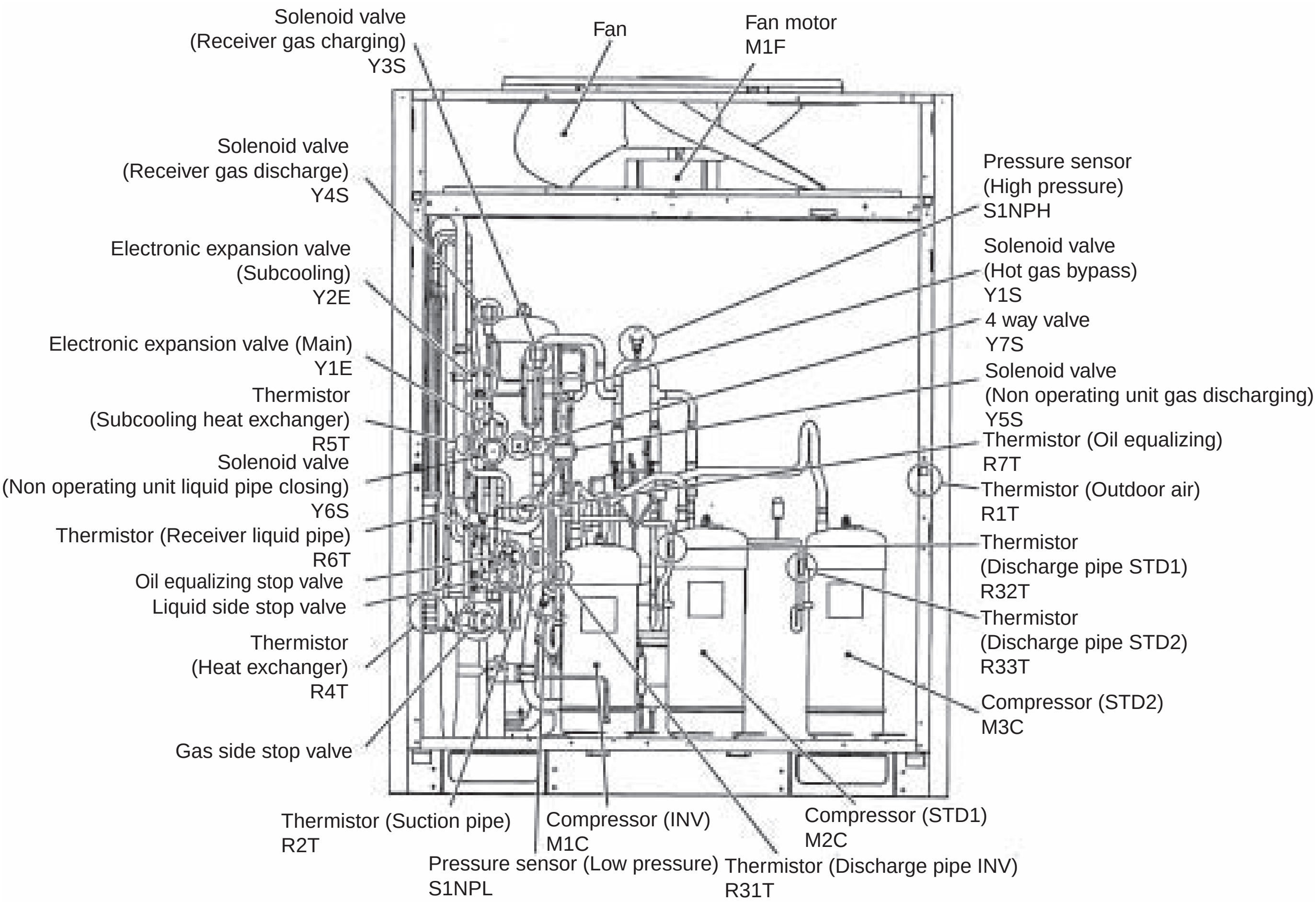


## 2.3 RXYQ14, 16M

### Plan

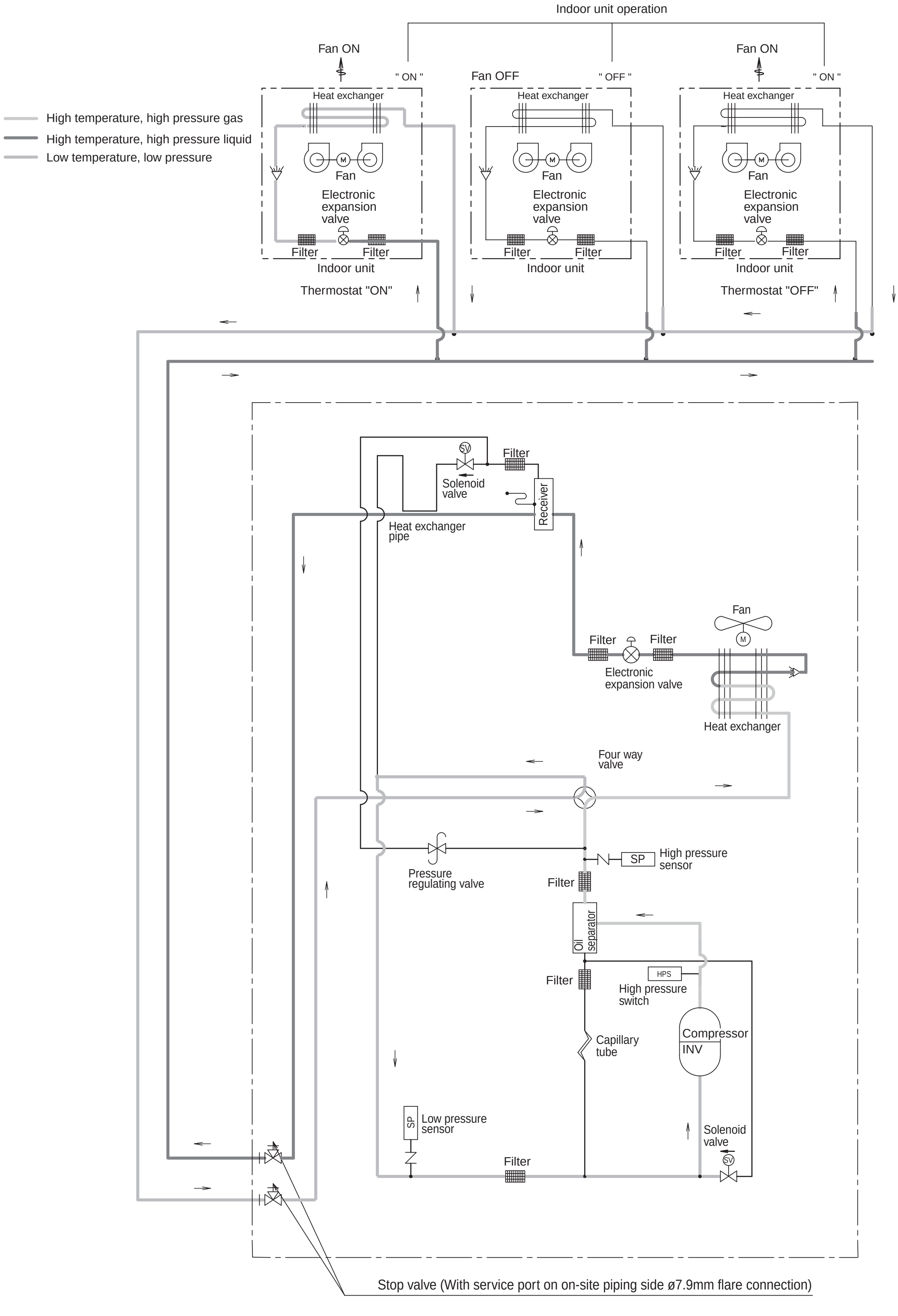



### Front View



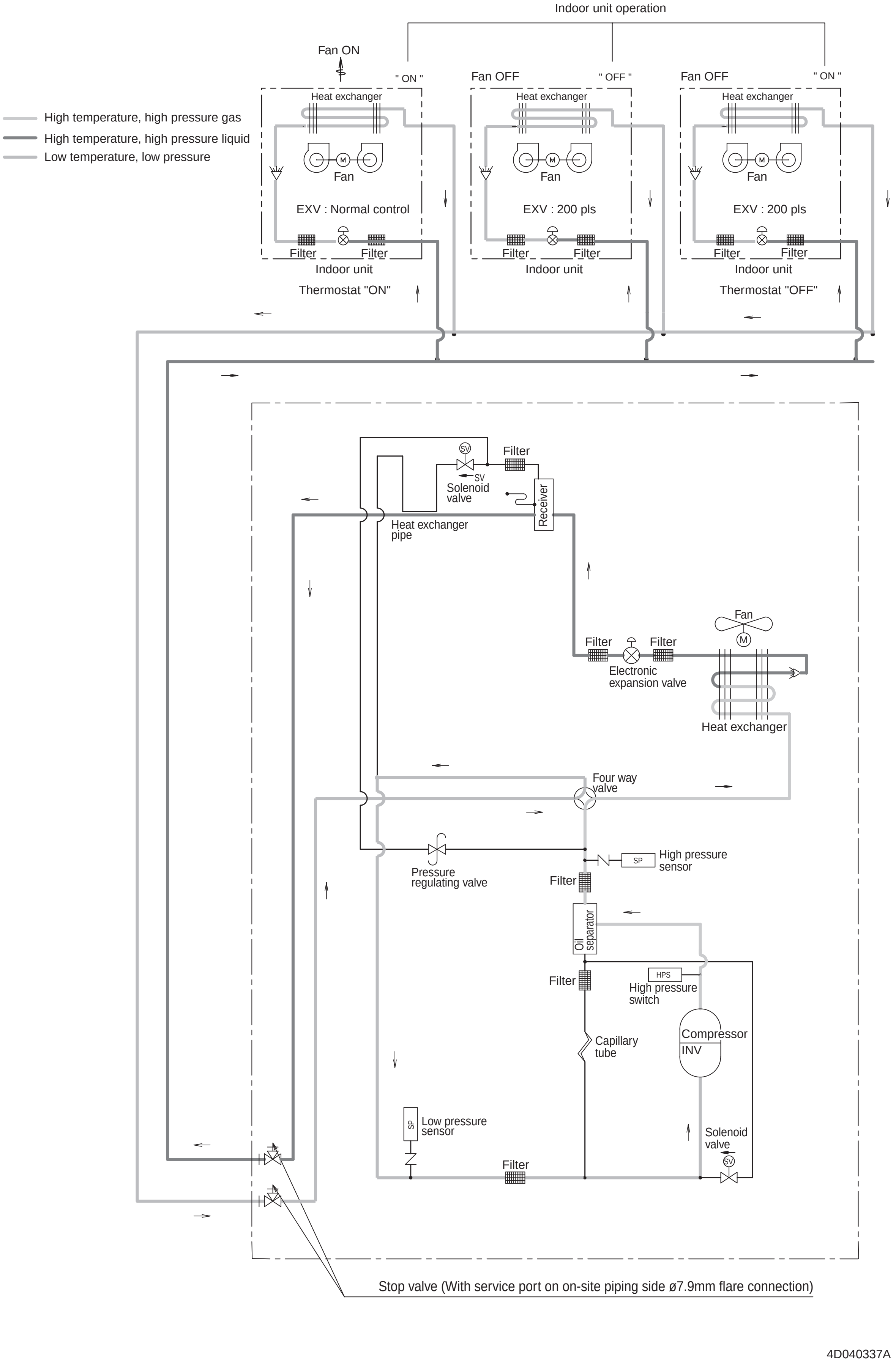
# 3. Refrigerant Flow for Each Operation Mode

## RXYQ5M
### Cooling Operation

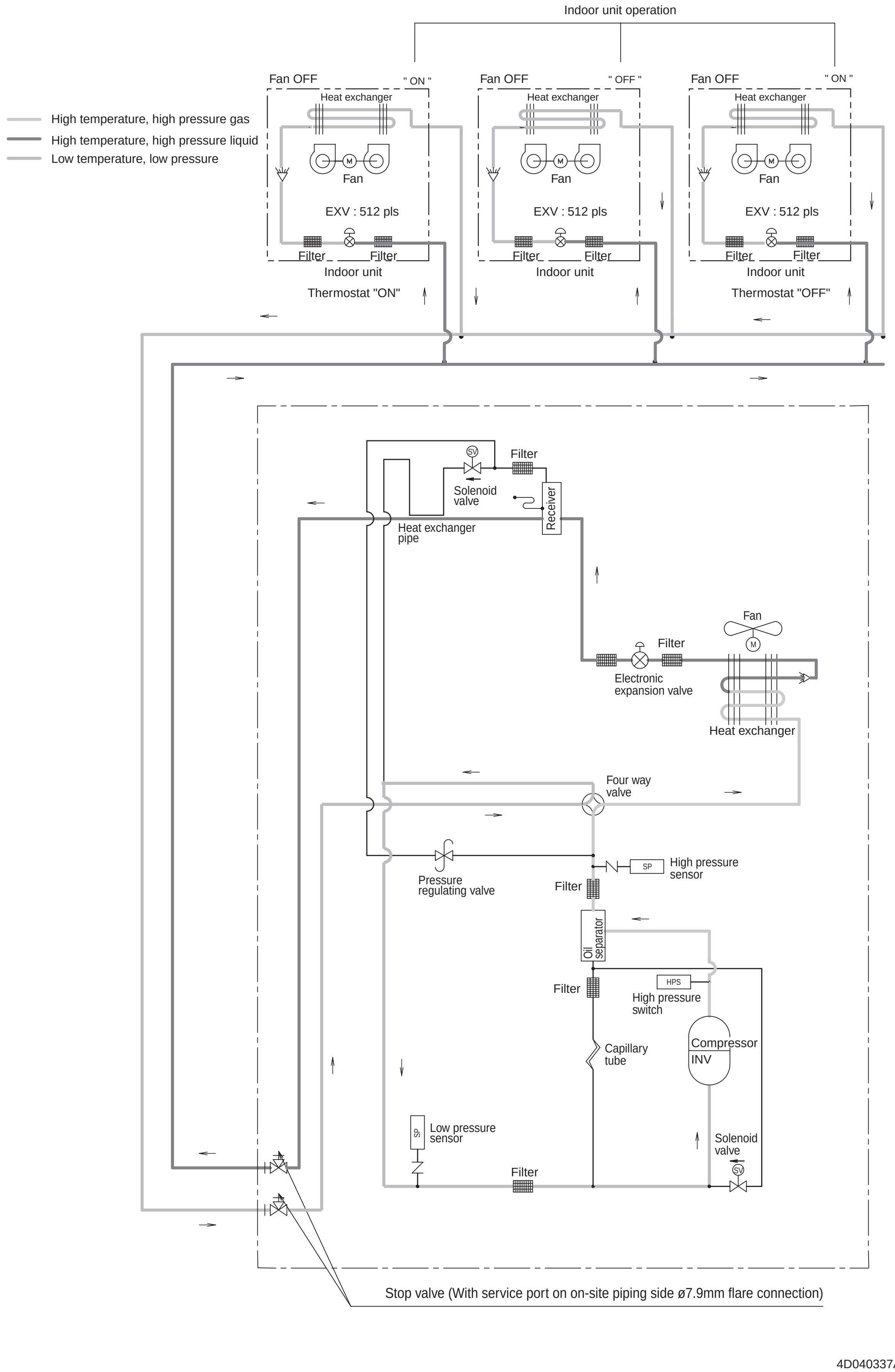



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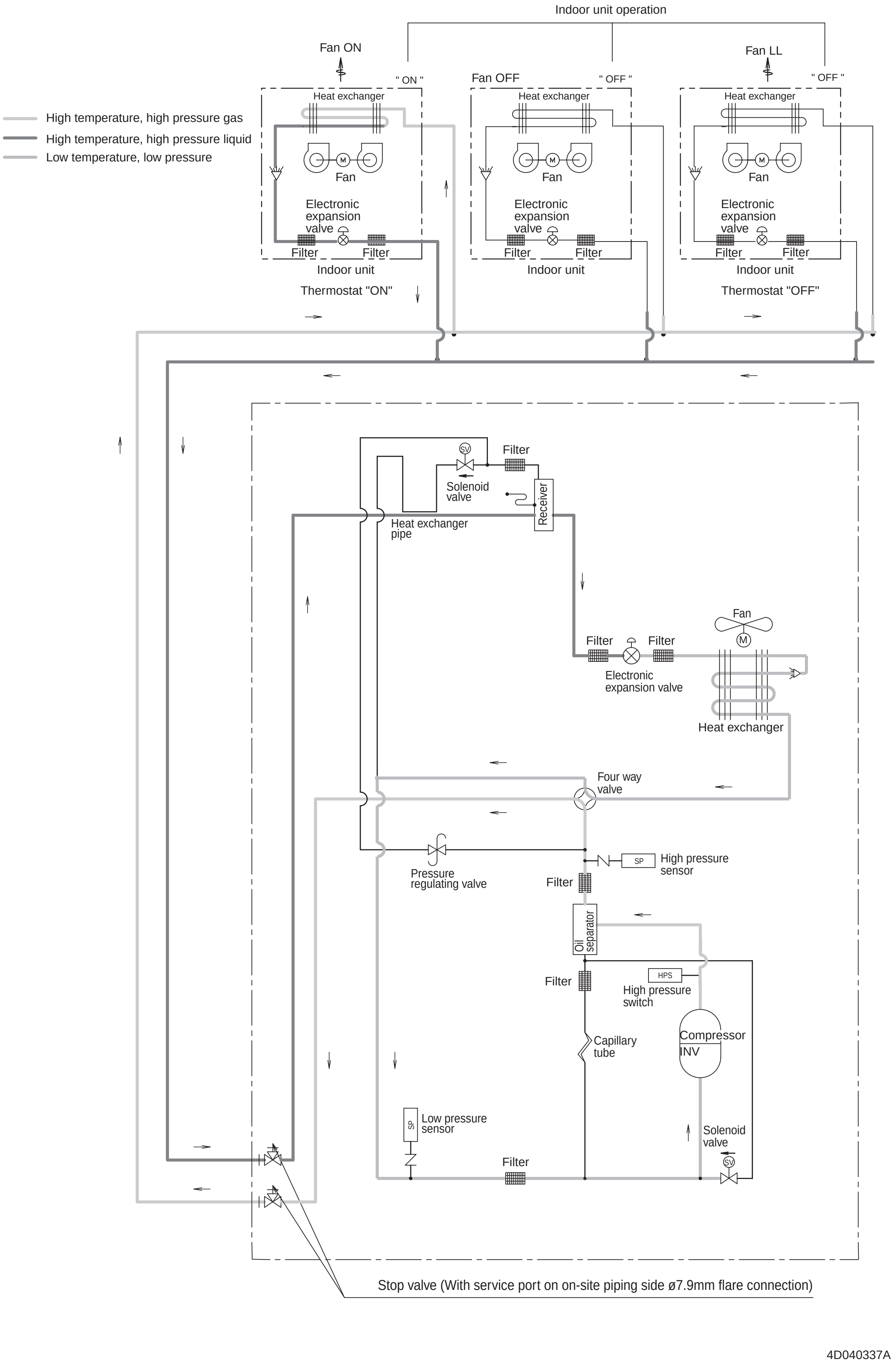
## Cooling Oil Return Operation



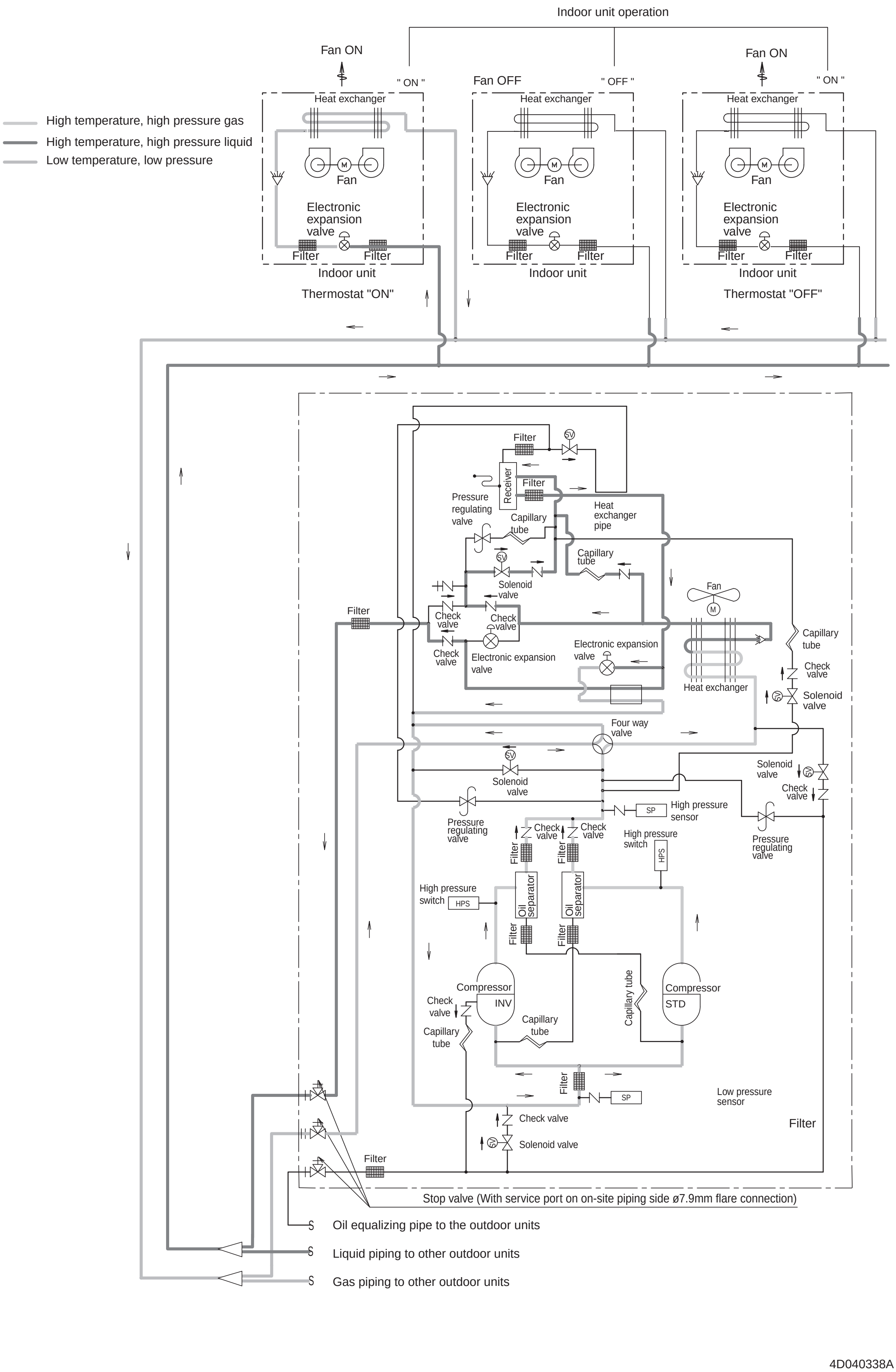
## Heating Oil Return & Defrost Operation



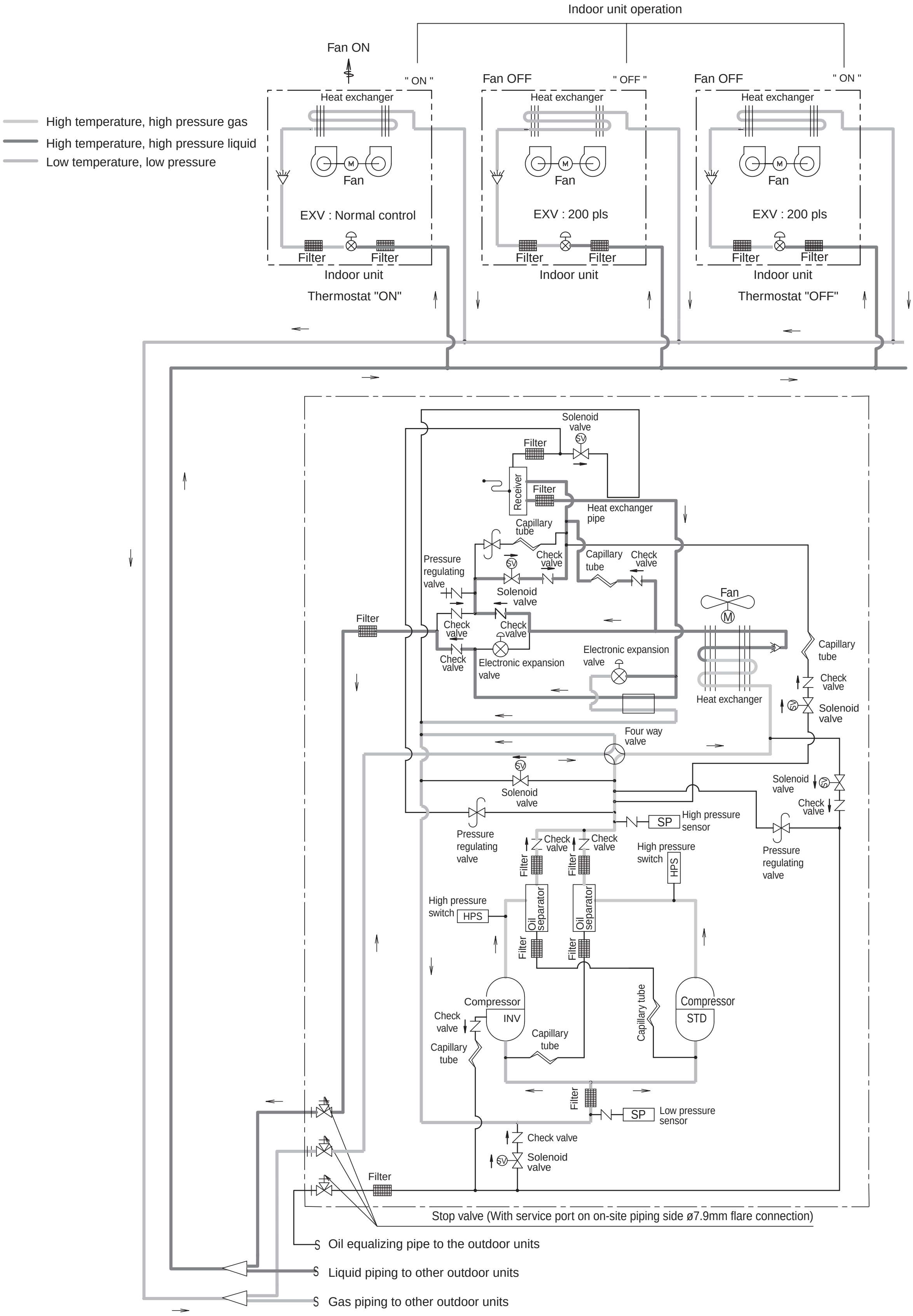
## Heating Operation



## RXYQ8, 10, 12M
## Cooling Operation

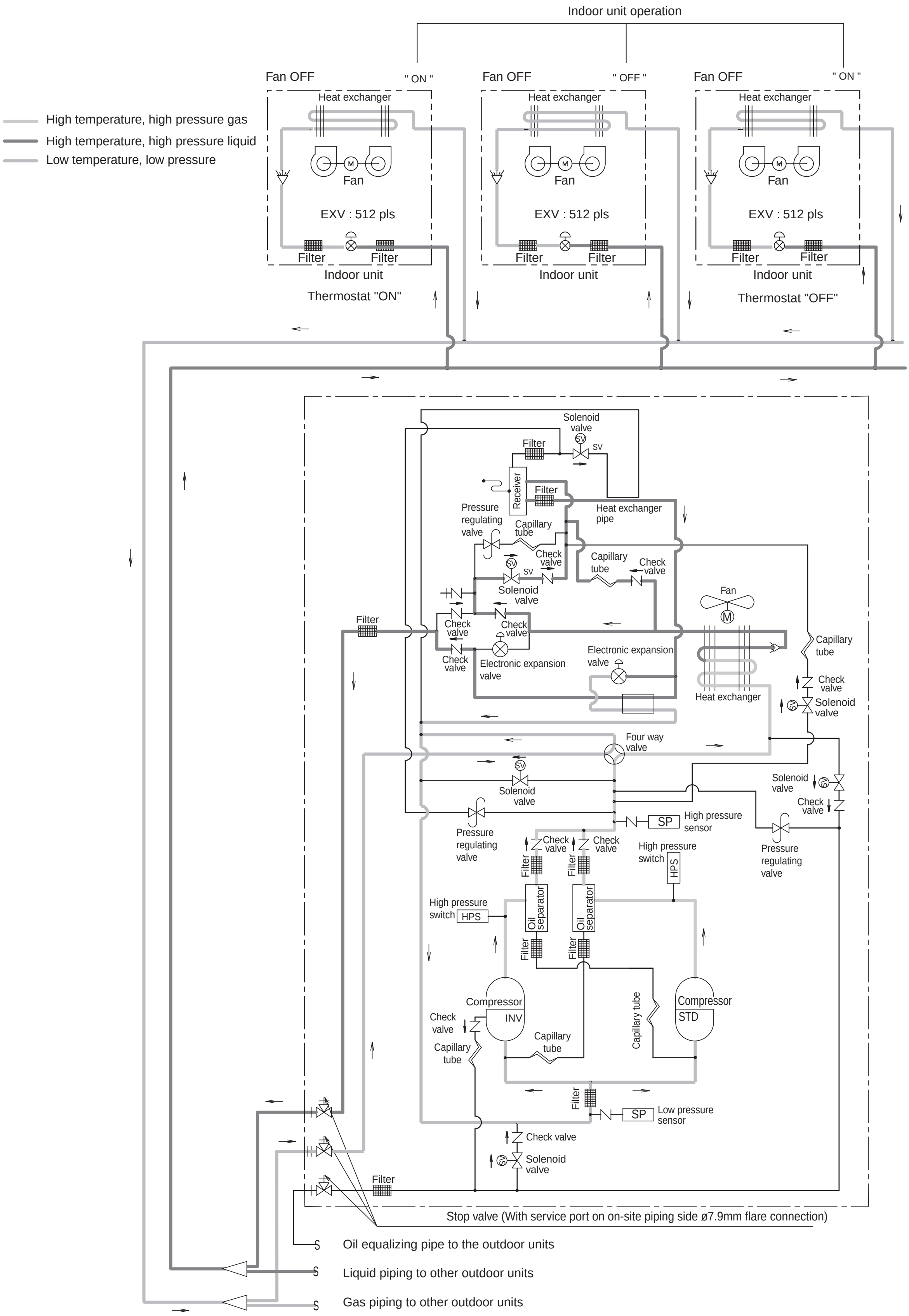


## Cooling Oil Return



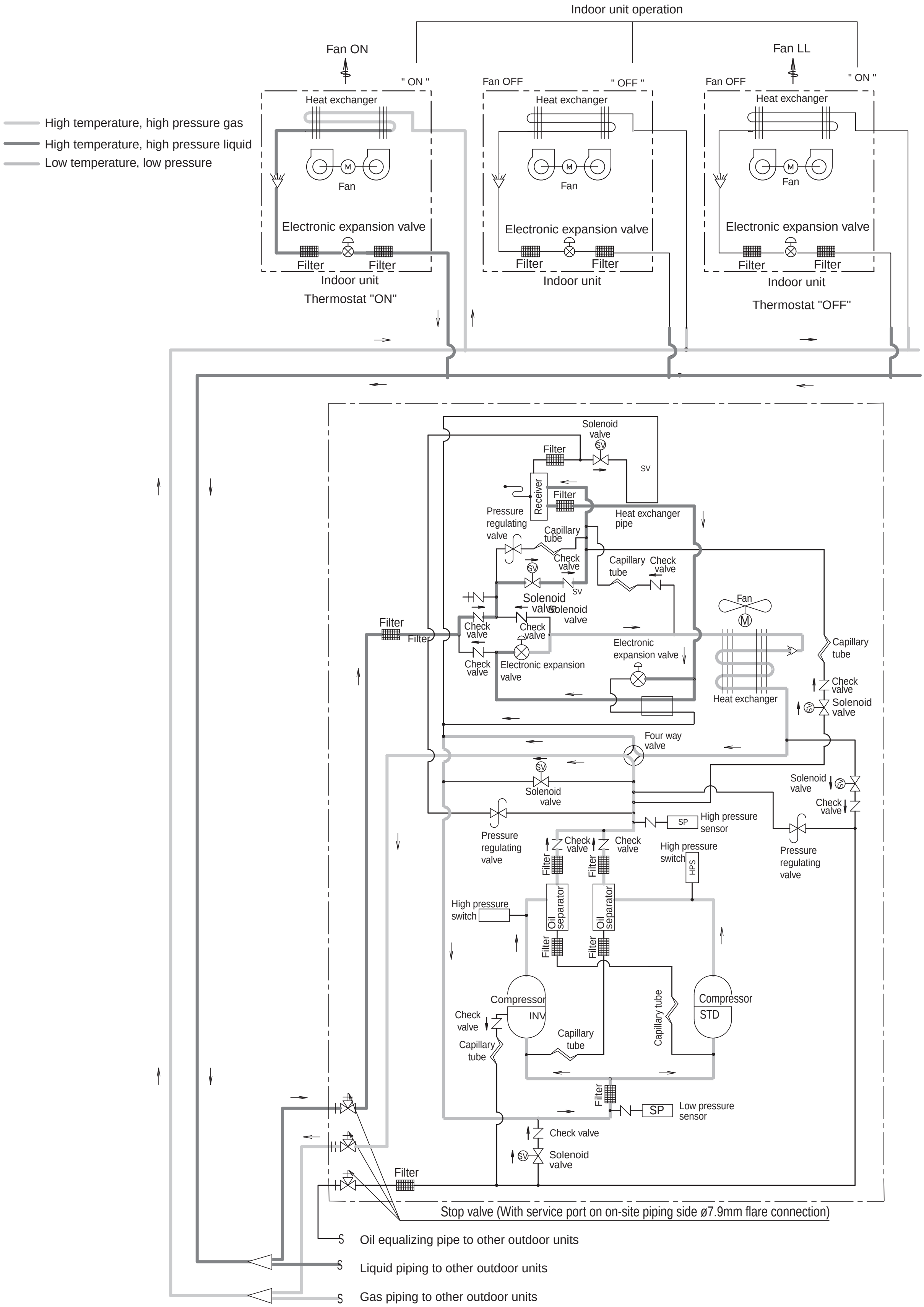

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## Heating Oil Return & Defrost



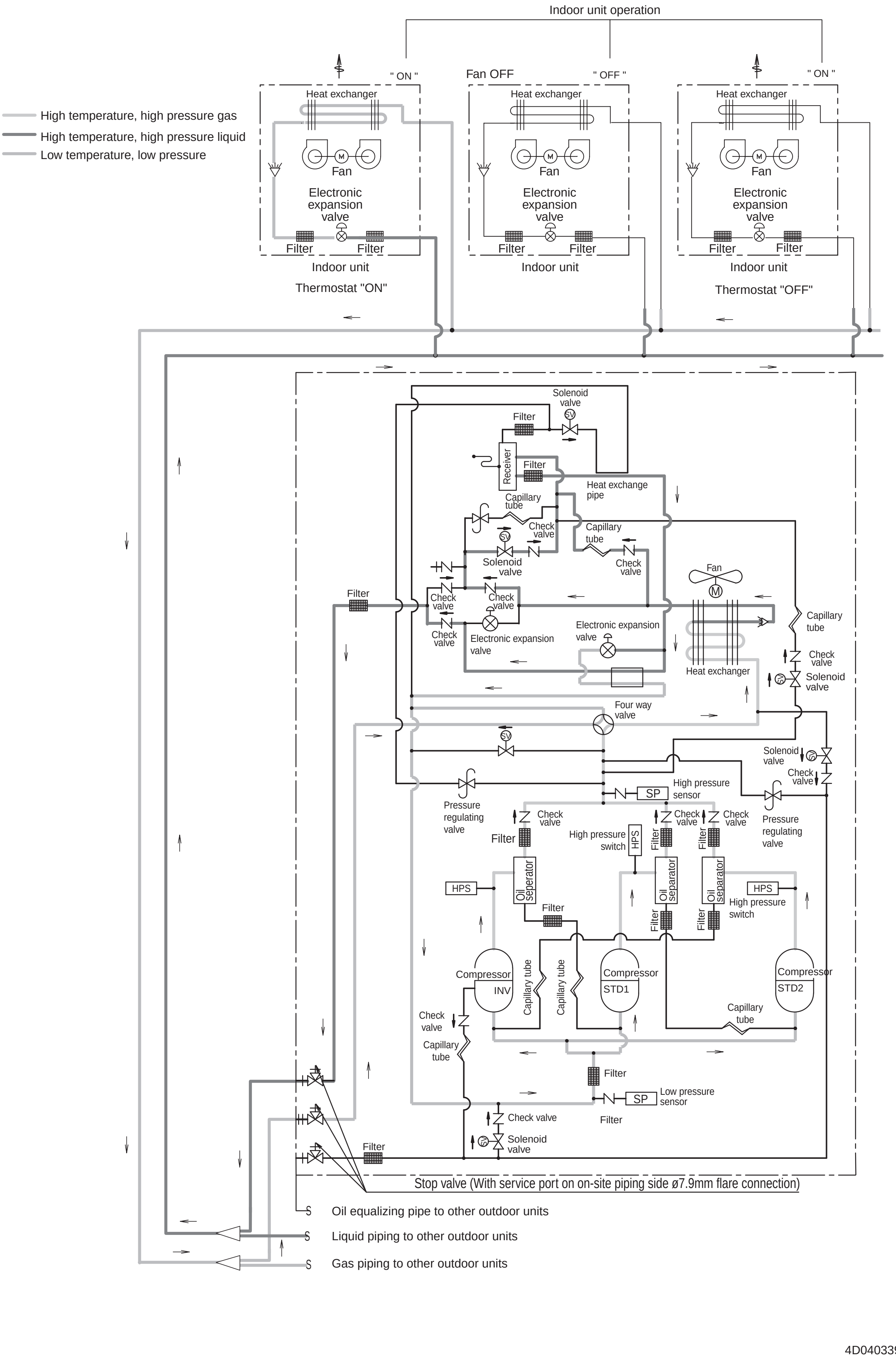

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## Heating Operation

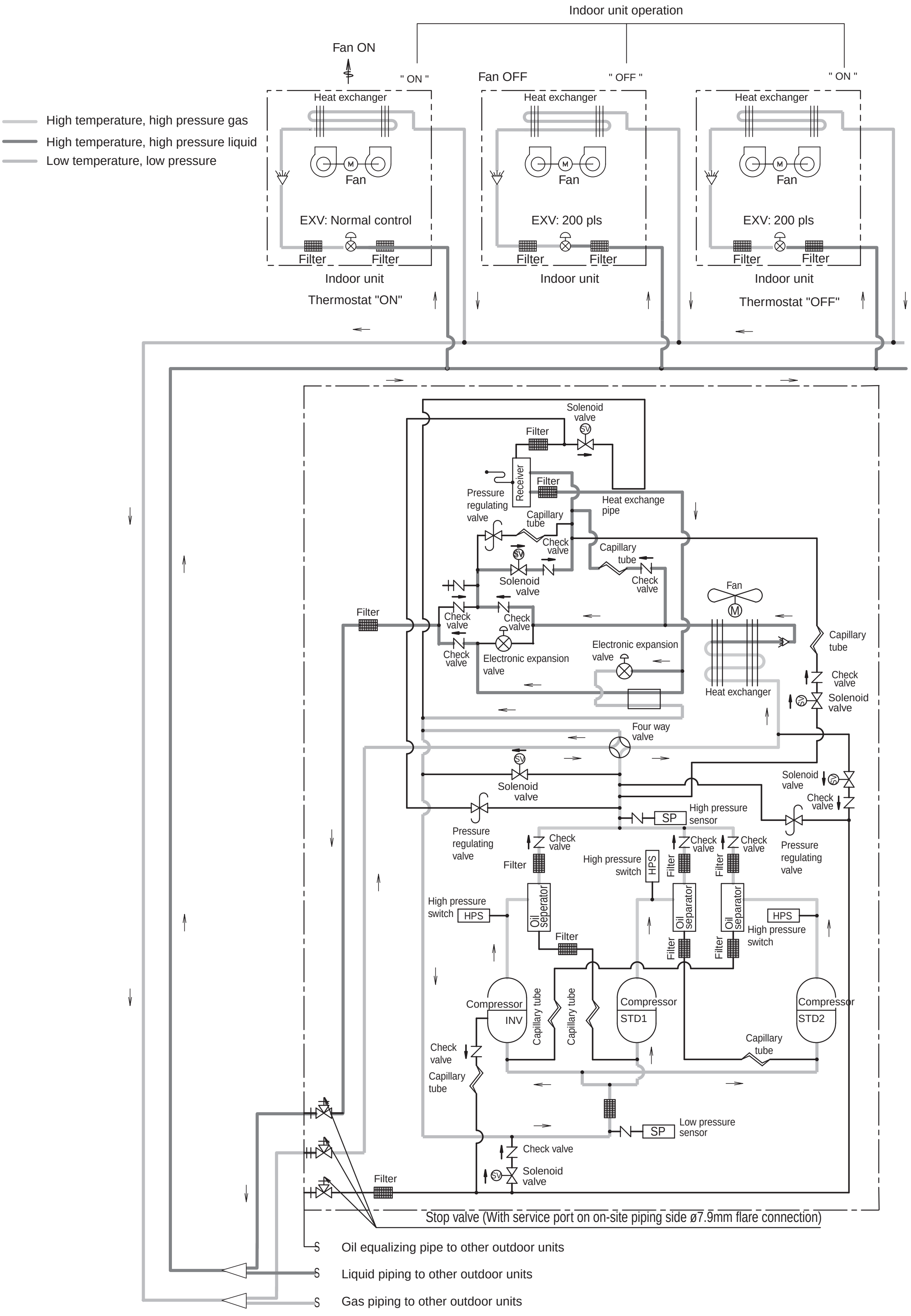



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## RXYQ14, 16M
## Cooling Operation

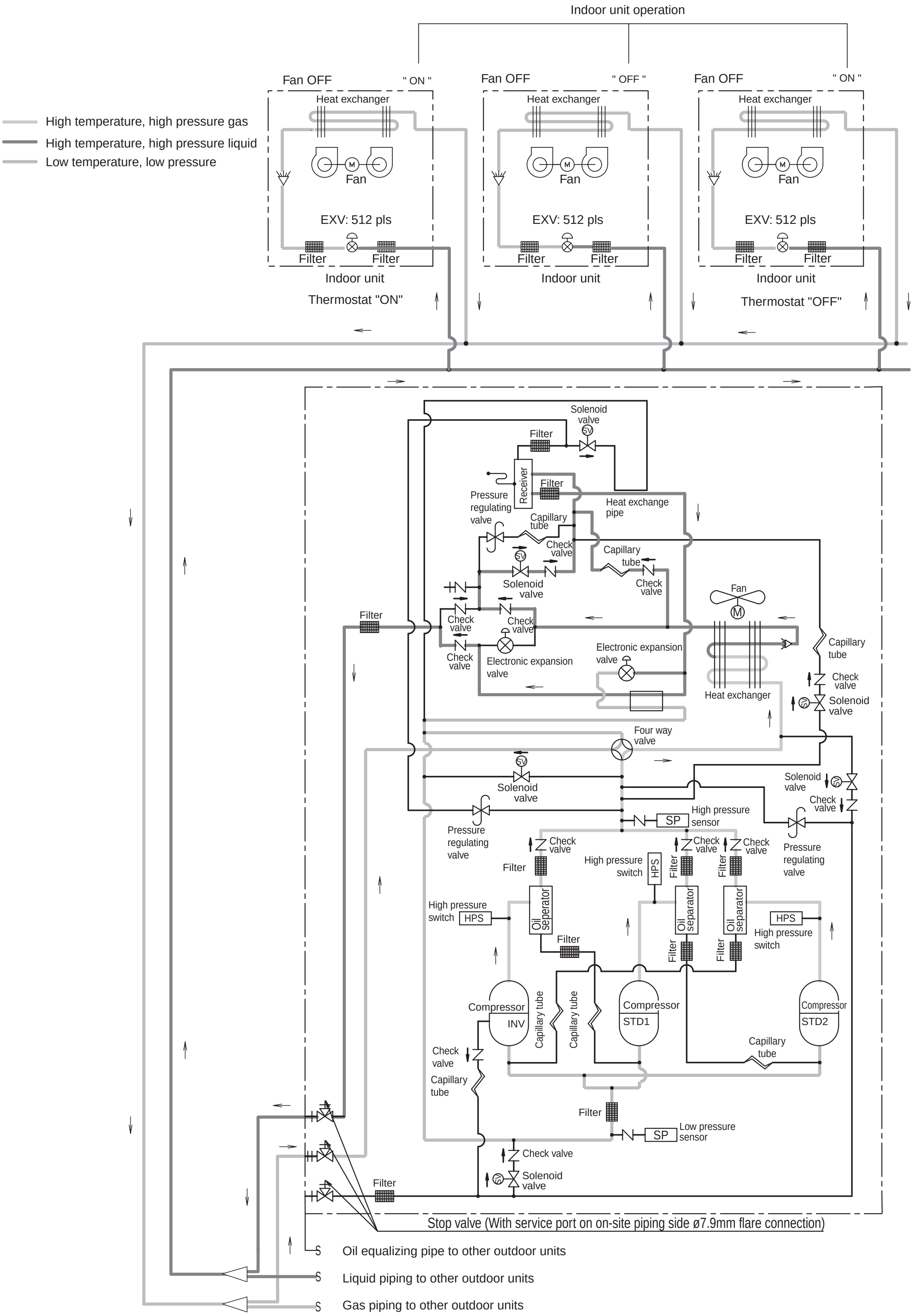


## Cooling Oil Return Operation



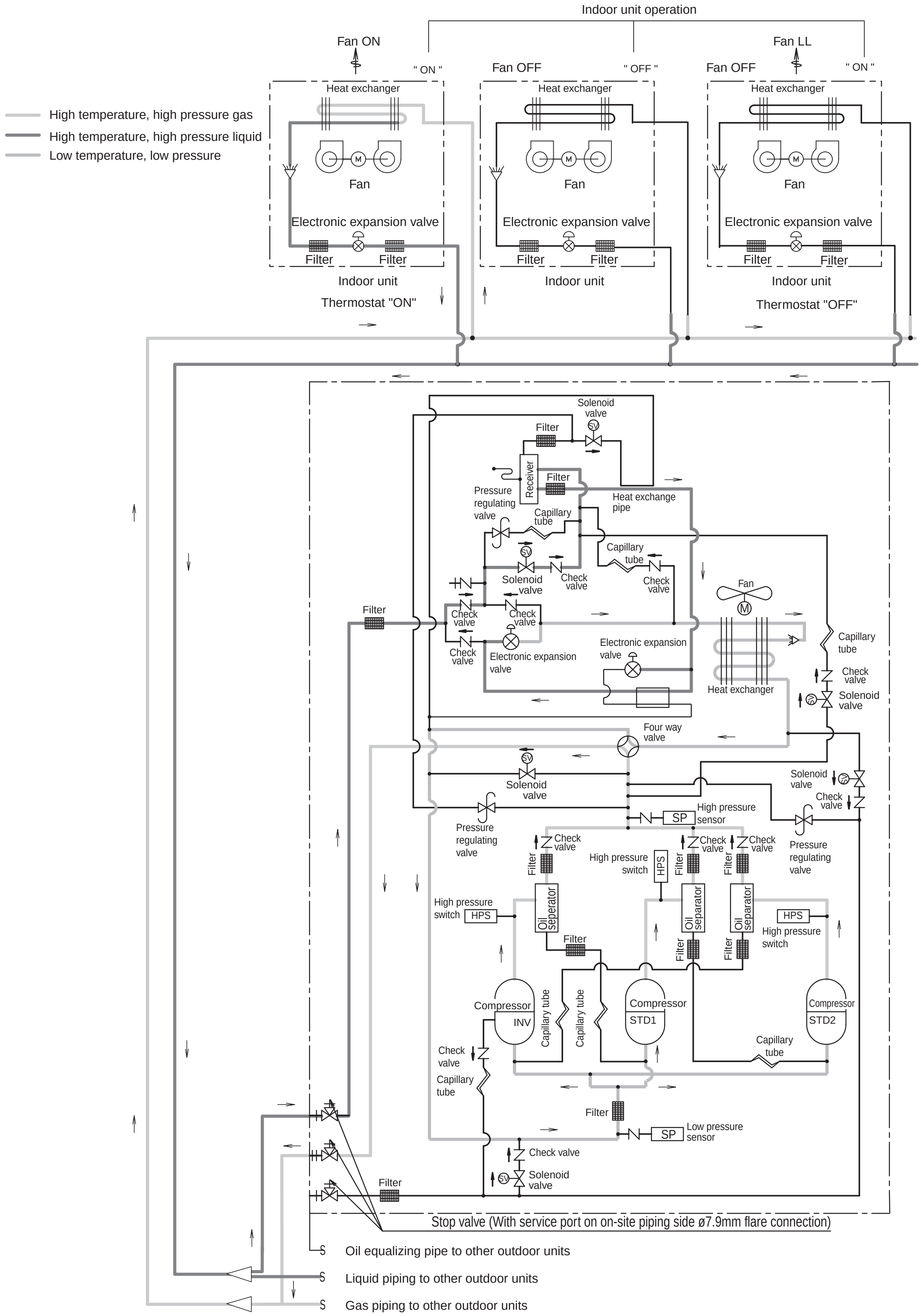

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## Heating Oil Return & Defrost Operation



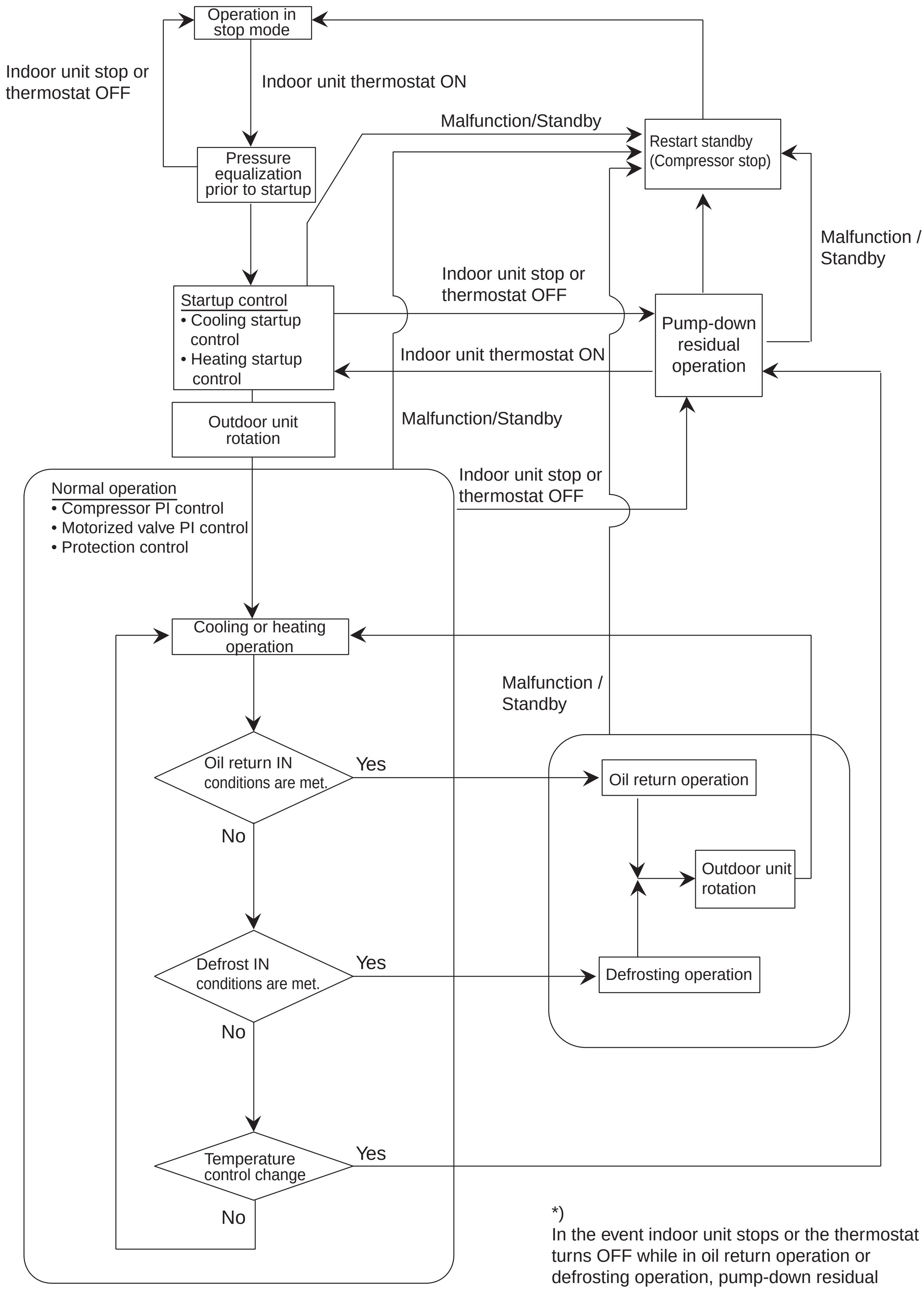

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## Heating Operation



# Part 4
# Function

# 1. Operation Mode




*)
In the event indoor unit stops or the thermostat turns OFF while in oil return operation or defrosting operation, pump-down residual operation is performed on completion of the oil return operation or defrosting operation.

# 2. Basic Control

## 2.1 Normal Operation

■ Cooling Operation

| Actuator | Operation | Remarks |
|---|---|---|
| Compressor | Compressor PI control | Used for high pressure protection control, low pressure protection control, discharge pipe temperature protection control, and compressor operating frequency upper limit control with inverter protection control. |
| Outdoor unit fan | Cooling fan control | — |
| Four way valve | OFF | — |
| Main motorized valve (EV1) | 0 pls | — (RXYQ5M : 1400pls) |
| Subcooling motorized valve (EV2) | PI control | — |
| Hot gas bypass valve (SVP) | OFF | This valve turns on with low pressure protection control. |
| Oil equalization valve (SVO) | ON | In the case of multi-outdoor-unit system, this valve repeats ON/OFF operation at regular intervals of time. |
| Receiver gas charging valve (SVL) | OFF | This valve turns on when outdoor temperature is low. |
| Receiver gas discharging valve (SVG) | OFF | — |
| Non-operating unit gas discharging valve (SVSG) | OFF | — |
| Non-operating unit liquid pipe stop valve (SVSL) | ON | — |

■ Heating Operation

| Actuator | Operation | Remarks |
|---|---|---|
| Compressor | Compressor PI control | Used for high pressure protection control, low pressure protection control, discharge pipe temperature protection control, and compressor operating frequency upper limit control with inverter protection control. |
| Outdoor unit fan | STEP8 or 9 | — |
| Four way valve | ON | — |
| Main motorized valve (EV1) | PI control | — |
| Subcooling motorized valve (EV2) | 0 pls | — |
| Hot gas bypass valve (SVP) | OFF | This valve turns on with low pressure protection control. |
| Oil equalization valve (SVO) | ON | In the case of multi-outdoor-unit system, this valve repeats ON/OFF operation at regular intervals of time. |
| Receiver gas charging valve (SVL) | OFF | — |
| Receiver gas discharging valve (SVG) | OFF | — |
| Non-operating unit gas discharging valve (SVSG) | OFF | — |
| Non-operating unit liquid pipe stop valve (SVSL) | ON | — |

★Heating operation is not functional at an outdoor air temperature of 24°C or more.

# 2.2 Compressor PI Control

## Compressor PI Control

Carries out the compressor capacity PI control to maintain Te at constant during cooling operation and Tc at constant during heating operation to ensure stable unit performance.

**[Cooling operation]**

Controls compressor capacity to adjust Te to achieve target value (TeS).

**Te setting**

| L | M (Normal) (factory setting) | H |
|---|---|---|
| 3 | 6 | 9 |

Te : Low pressure equivalent saturation temperature (°C)

TeS : Target Te value
(Varies depending on Te setting, operating frequency, etc.)

**[Heating operation]**

Controls compressor capacity to adjust Tc to achieve target value (TcS).

**Tc setting**

| L | M (Normal) (factory setting) | H |
|---|---|---|
| 43 | 46 | 49 |

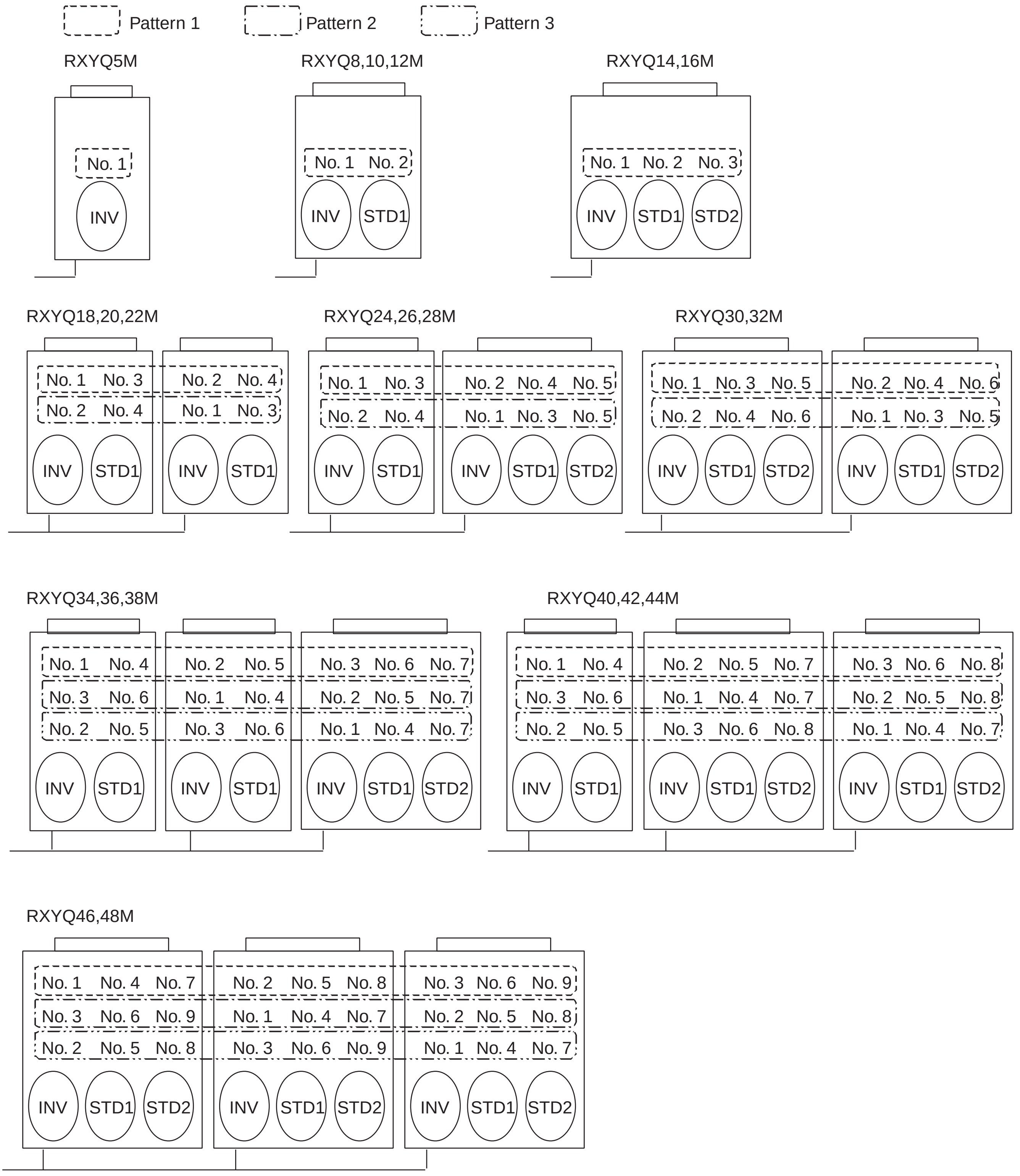
Tc : High pressure equivalent saturation temperature (°C)

TcS : Target Tc value
(Varies depending on Tc setting, operating frequency, etc.)

■ Compressor Operating Priority

Each compressor operates in the following order of priority.
In the case of multi-outdoor-unit system, each compressor operates in any of Pattern 1 through Pattern 3 according to the rotation of outdoor units.

INV: Inverter compressor
STD1: Standard compressor 1
STD2: Standard compressor 2




*

- In the case of combination of 3 outdoor units, the above diagram shows master unit, slave unit 1, and slave unit 2 from left to right.
- Compressors may operate in any pattern other than those mentioned above according to the operating status.

RXYQ5M

| STEP | INV |
|---|---|
| 1 | 52Hz |
| 2 | 57Hz |
| 3 | 62Hz |
| 4 | 68Hz |
| 5 | 74Hz |
| 6 | 81Hz |
| 7 | 88Hz |
| 8 | 96Hz |
| 9 | 104Hz |
| 10 | 110Hz |
| 11 | 116Hz |
| 12 | 124Hz |
| 13 | 133Hz |
| 14 | 143Hz |
| 15 | 158Hz |
| 16 | 165Hz |
| 17 | 177Hz |
| 18 | 189Hz |
| 19 | 202Hz |
| 20 | 210Hz |

RXYQ8,10,12M

| STEP | INV | STD1 |
|---|---|---|
| 1 | 52Hz | OFF |
| 2 | 57Hz | OFF |
| 3 | 62Hz | OFF |
| 4 | 68Hz | OFF |
| 5 | 74Hz | OFF |
| 6 | 81Hz | OFF |
| 7 | 88Hz | OFF |
| 8 | 96Hz | OFF |
| 9 | 104Hz | OFF |
| 10 | 110Hz | OFF |
| 11 | 116Hz | OFF |
| 12 | 124Hz | OFF |
| 13 | 133Hz | OFF |
| 14 | 143Hz | OFF |
| 15 | 158Hz | OFF |
| 16 | 165Hz | OFF |
| 17 | 177Hz | OFF |
| 18 | 189Hz | OFF |
| 19 | 202Hz | OFF |
| 20 | 210Hz | OFF |
| 21 | 52Hz | ON |
| 22 | 74Hz | ON |
| 23 | 96Hz | ON |
| 24 | 116Hz | ON |
| 25 | 133Hz | ON |
| 26 | 158Hz | ON |
| 27 | 177Hz | ON |
| 28 | 202Hz | ON |
| 29 | 210Hz | ON |

RXYQ14,16M

| STEP | INV | STD1 | STD2 |
|---|---|---|---|
| 1 | 52Hz | OFF | OFF |
| 2 | 57Hz | OFF | OFF |
| 3 | 62Hz | OFF | OFF |
| 4 | 68Hz | OFF | OFF |
| 5 | 74Hz | OFF | OFF |
| 6 | 81Hz | OFF | OFF |
| 7 | 88Hz | OFF | OFF |
| 8 | 96Hz | OFF | OFF |
| 9 | 104Hz | OFF | OFF |
| 10 | 110Hz | OFF | OFF |
| 11 | 116Hz | OFF | OFF |
| 12 | 124Hz | OFF | OFF |
| 13 | 133Hz | OFF | OFF |
| 14 | 143Hz | OFF | OFF |
| 15 | 158Hz | OFF | OFF |
| 16 | 165Hz | OFF | OFF |
| 17 | 177Hz | OFF | OFF |
| 18 | 189Hz | OFF | OFF |
| 19 | 202Hz | OFF | OFF |
| 20 | 210Hz | OFF | OFF |
| 21 | 52Hz | ON | OFF |
| 22 | 74Hz | ON | OFF |
| 23 | 96Hz | ON | OFF |
| 24 | 116Hz | ON | OFF |
| 25 | 133Hz | ON | OFF |
| 26 | 158Hz | ON | OFF |
| 27 | 177Hz | ON | OFF |
| 28 | 202Hz | ON | OFF |
| 29 | 210Hz | ON | OFF |
| 30 | 52Hz | ON | ON |
| 31 | 88Hz | ON | ON |
| 32 | 124Hz | ON | ON |
| 33 | 158Hz | ON | ON |
| 34 | 189Hz | ON | ON |
| 35* | 210Hz | ON | ON |

*)Available only on 50Hz

RXYQ18,20,22M

| STEP | Master unit INV | Slave unit INV | STD unit No.1 | STD unit No.2 |
|---|---|---|---|---|
| 1 | 52Hz | OFF | OFF | OFF |
| 2 | 57Hz | OFF | OFF | OFF |
| 3 | 62Hz | OFF | OFF | OFF |
| 4 | 68Hz | OFF | OFF | OFF |
| 5 | 74Hz | OFF | OFF | OFF |
| 6 | 81Hz | OFF | OFF | OFF |
| 7 | 88Hz | OFF | OFF | OFF |
| 8 | 96Hz | OFF | OFF | OFF |
| 9 | 104Hz | OFF | OFF | OFF |
| 10 | 110Hz | OFF | OFF | OFF |
| 11 | 116Hz | OFF | OFF | OFF |
| 12 | 124Hz | OFF | OFF | OFF |
| 13 | 133Hz | OFF | OFF | OFF |
| 14 | 143Hz | OFF | OFF | OFF |
| 15 | 158Hz | OFF | OFF | OFF |
| 16 | 165Hz | OFF | OFF | OFF |
| 17 | 177Hz | OFF | OFF | OFF |
| 18 | 189Hz | OFF | OFF | OFF |
| 19 | 202Hz | OFF | OFF | OFF |
| 20 | 210Hz | OFF | OFF | OFF |
| 21 | 52Hz | 189Hz | OFF | OFF |
| 22 | 74Hz | 189Hz | OFF | OFF |
| 23 | 96Hz | 189Hz | OFF | OFF |
| 24 | 116Hz | 189Hz | OFF | OFF |
| 25 | 133Hz | 189Hz | OFF | OFF |
| 26 | 158Hz | 189Hz | OFF | OFF |
| 27 | 177Hz | 189Hz | OFF | OFF |
| 28 | 202Hz | 189Hz | OFF | OFF |
| 29 | 210Hz | 189Hz | OFF | OFF |
| 30 | 52Hz | 189Hz | ON | OFF |
| 31 | 88Hz | 189Hz | ON | OFF |
| 32 | 124Hz | 189Hz | ON | OFF |
| 33 | 158Hz | 189Hz | ON | OFF |
| 34 | 189Hz | 189Hz | ON | OFF |
| 35 | 210Hz | 189Hz | ON | OFF |
| 36 | 52Hz | 189Hz | ON | ON |
| 37 | 88Hz | 189Hz | ON | ON |
| 38 | 124Hz | 189Hz | ON | ON |
| 39 | 158Hz | 189Hz | ON | ON |
| 40 | 189Hz | 189Hz | ON | ON |
| 41 | 210Hz | 189Hz | ON | ON |
| 42 | 210Hz | 210Hz | ON | ON |

RXYQ24,26,28M

| STEP | Master unit INV | Slave unit INV | STD unit No.1 | STD unit No.2 | STD unit No.3 |
|---|---|---|---|---|---|
| 1 | 52Hz | OFF | OFF | OFF | OFF |
| 2 | 57Hz | OFF | OFF | OFF | OFF |
| 3 | 62Hz | OFF | OFF | OFF | OFF |
| 4 | 68Hz | OFF | OFF | OFF | OFF |
| 5 | 74Hz | OFF | OFF | OFF | OFF |
| 6 | 81Hz | OFF | OFF | OFF | OFF |
| 7 | 88Hz | OFF | OFF | OFF | OFF |
| 8 | 96Hz | OFF | OFF | OFF | OFF |
| 9 | 104Hz | OFF | OFF | OFF | OFF |
| 10 | 110Hz | OFF | OFF | OFF | OFF |
| 11 | 116Hz | OFF | OFF | OFF | OFF |
| 12 | 124Hz | OFF | OFF | OFF | OFF |
| 13 | 133Hz | OFF | OFF | OFF | OFF |
| 14 | 143Hz | OFF | OFF | OFF | OFF |
| 15 | 158Hz | OFF | OFF | OFF | OFF |
| 16 | 165Hz | OFF | OFF | OFF | OFF |
| 17 | 177Hz | OFF | OFF | OFF | OFF |
| 18 | 189Hz | OFF | OFF | OFF | OFF |
| 19 | 202Hz | OFF | OFF | OFF | OFF |
| 20 | 210Hz | OFF | OFF | OFF | OFF |
| 21 | 52Hz | 189Hz | OFF | OFF | OFF |
| 22 | 74Hz | 189Hz | OFF | OFF | OFF |
| 23 | 96Hz | 189Hz | OFF | OFF | OFF |
| 24 | 116Hz | 189Hz | OFF | OFF | OFF |
| 25 | 133Hz | 189Hz | OFF | OFF | OFF |
| 26 | 158Hz | 189Hz | OFF | OFF | OFF |
| 27 | 177Hz | 189Hz | OFF | OFF | OFF |
| 28 | 202Hz | 189Hz | OFF | OFF | OFF |
| 29 | 210Hz | 189Hz | OFF | OFF | OFF |
| 30 | 52Hz | 189Hz | ON | OFF | OFF |
| 31 | 88Hz | 189Hz | ON | OFF | OFF |
| 32 | 124Hz | 189Hz | ON | OFF | OFF |
| 33 | 158Hz | 189Hz | ON | OFF | OFF |
| 34 | 189Hz | 189Hz | ON | OFF | OFF |
| 35 | 210Hz | 189Hz | ON | OFF | OFF |
| 36 | 52Hz | 189Hz | ON | ON | OFF |
| 37 | 88Hz | 189Hz | ON | ON | OFF |
| 38 | 124Hz | 189Hz | ON | ON | OFF |
| 39 | 158Hz | 189Hz | ON | ON | OFF |
| 40 | 189Hz | 189Hz | ON | ON | OFF |
| 41 | 210Hz | 189Hz | ON | ON | OFF |
| 42 | 52Hz | 189Hz | ON | ON | ON |
| 43 | 104Hz | 189Hz | ON | ON | ON |
| 44 | 143Hz | 189Hz | ON | ON | ON |
| 45 | 189Hz | 189Hz | ON | ON | ON |
| 46 | 210Hz | 189Hz | ON | ON | ON |
| 47 | 210Hz | 210Hz | ON | ON | ON |

*

- Compressors are operated in the order of descending priorities.
- Compressors may operate in a pattern other than those listed in above tables subject to the operating conditions.
- “Master unit”, and “slave unit” in this section are the names for control, and they will be transferred according to the priority of rotation system.

RXYQ30,32M

| STEP | Master unit INV | Slave unit INV | STD unit No.1 | STD unit No.2 | STD unit No.3 | STD unit No.4 |
|---|---|---|---|---|---|---|
| 1 | 52Hz | OFF | OFF | OFF | OFF | OFF |
| 2 | 57Hz | OFF | OFF | OFF | OFF | OFF |
| 3 | 62Hz | OFF | OFF | OFF | OFF | OFF |
| 4 | 68Hz | OFF | OFF | OFF | OFF | OFF |
| 5 | 74Hz | OFF | OFF | OFF | OFF | OFF |
| 6 | 81Hz | OFF | OFF | OFF | OFF | OFF |
| 7 | 88Hz | OFF | OFF | OFF | OFF | OFF |
| 8 | 96Hz | OFF | OFF | OFF | OFF | OFF |
| 9 | 104Hz | OFF | OFF | OFF | OFF | OFF |
| 10 | 110Hz | OFF | OFF | OFF | OFF | OFF |
| 11 | 116Hz | OFF | OFF | OFF | OFF | OFF |
| 12 | 124Hz | OFF | OFF | OFF | OFF | OFF |
| 13 | 133Hz | OFF | OFF | OFF | OFF | OFF |
| 14 | 143Hz | OFF | OFF | OFF | OFF | OFF |
| 15 | 158Hz | OFF | OFF | OFF | OFF | OFF |
| 16 | 165Hz | OFF | OFF | OFF | OFF | OFF |
| 17 | 177Hz | OFF | OFF | OFF | OFF | OFF |
| 18 | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 19 | 202Hz | OFF | OFF | OFF | OFF | OFF |
| 20 | 210Hz | OFF | OFF | OFF | OFF | OFF |
| 21 | 52Hz | 189Hz | OFF | OFF | OFF | OFF |
| 22 | 74Hz | 189Hz | OFF | OFF | OFF | OFF |
| 23 | 96Hz | 189Hz | OFF | OFF | OFF | OFF |
| 24 | 116Hz | 189Hz | OFF | OFF | OFF | OFF |
| 25 | 133Hz | 189Hz | OFF | OFF | OFF | OFF |
| 26 | 158Hz | 189Hz | OFF | OFF | OFF | OFF |
| 27 | 177Hz | 189Hz | OFF | OFF | OFF | OFF |
| 28 | 202Hz | 189Hz | OFF | OFF | OFF | OFF |
| 29 | 210Hz | 189Hz | OFF | OFF | OFF | OFF |
| 30 | 52Hz | 189Hz | ON | OFF | OFF | OFF |
| 31 | 88Hz | 189Hz | ON | OFF | OFF | OFF |
| 32 | 124Hz | 189Hz | ON | OFF | OFF | OFF |
| 33 | 158Hz | 189Hz | ON | OFF | OFF | OFF |
| 34 | 189Hz | 189Hz | ON | OFF | OFF | OFF |
| 35 | 210Hz | 189Hz | ON | OFF | OFF | OFF |
| 36 | 52Hz | 189Hz | ON | ON | OFF | OFF |
| 37 | 88Hz | 189Hz | ON | ON | OFF | OFF |
| 38 | 124Hz | 189Hz | ON | ON | OFF | OFF |
| 39 | 158Hz | 189Hz | ON | ON | OFF | OFF |
| 40 | 189Hz | 189Hz | ON | ON | OFF | OFF |
| 41 | 210Hz | 189Hz | ON | ON | OFF | OFF |
| 42 | 52Hz | 189Hz | ON | ON | ON | OFF |
| 43 | 104Hz | 189Hz | ON | ON | ON | OFF |
| 44 | 143Hz | 189Hz | ON | ON | ON | OFF |
| 45 | 189Hz | 189Hz | ON | ON | ON | OFF |
| 46 | 210Hz | 189Hz | ON | ON | ON | OFF |
| 47 | 52Hz | 189Hz | ON | ON | ON | ON |
| 48 | 104Hz | 189Hz | ON | ON | ON | ON |
| 49 | 143Hz | 189Hz | ON | ON | ON | ON |
| 50 | 189Hz | 189Hz | ON | ON | ON | ON |
| 51 | 210Hz | 189Hz | ON | ON | ON | ON |
| 52 | 210Hz | 210Hz | ON | ON | ON | ON |

RXYQ34,36,38M

| STEP | Master unit INV | Slave unit1 INV | Slave unit2 INV | STD unit No.1 | STD unit No.2 | STD unit No.3 | STD unit No.4 |
|---|---|---|---|---|---|---|---|
| 1 | 52Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 2 | 57Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 3 | 62Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 4 | 68Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 5 | 74Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 6 | 81Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 7 | 88Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 8 | 96Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 9 | 104Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 10 | 110Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 11 | 116Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 12 | 124Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 13 | 133Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 14 | 143Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 15 | 158Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 16 | 165Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 17 | 177Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 18 | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 19 | 202Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 20 | 210Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 21 | 52Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 22 | 74Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 23 | 96Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 24 | 116Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 25 | 133Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 26 | 158Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 27 | 177Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 28 | 202Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 29 | 210Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 30 | 52Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF |
| 31 | 88Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF |
| 32 | 124Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF |
| 33 | 158Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF |
| 34 | 189Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF |
| 35 | 210Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF |
| 36 | 52Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF |
| 37 | 88Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF |
| 38 | 124Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF |
| 39 | 158Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF |
| 40 | 189Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF |
| 41 | 210Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF |
| 42 | 52Hz | 189Hz | 189Hz | ON | ON | OFF | OFF |
| 43 | 104Hz | 189Hz | 189Hz | ON | ON | OFF | OFF |
| 44 | 143Hz | 189Hz | 189Hz | ON | ON | OFF | OFF |
| 45 | 189Hz | 189Hz | 189Hz | ON | ON | OFF | OFF |
| 46 | 210Hz | 189Hz | 189Hz | ON | ON | OFF | OFF |
| 47 | 52Hz | 189Hz | 189Hz | ON | ON | ON | OFF |
| 48 | 104Hz | 189Hz | 189Hz | ON | ON | ON | OFF |
| 49 | 143Hz | 189Hz | 189Hz | ON | ON | ON | OFF |
| 50 | 189Hz | 189Hz | 189Hz | ON | ON | ON | OFF |
| 51 | 210Hz | 189Hz | 189Hz | ON | ON | ON | OFF |
| 52 | 52Hz | 189Hz | 189Hz | ON | ON | ON | ON |
| 53 | 104Hz | 189Hz | 189Hz | ON | ON | ON | ON |
| 54 | 143Hz | 189Hz | 189Hz | ON | ON | ON | ON |
| 55 | 189Hz | 189Hz | 189Hz | ON | ON | ON | ON |
| 56 | 210Hz | 189Hz | 189Hz | ON | ON | ON | ON |
| 57 | 210Hz | 210Hz | 210Hz | ON | ON | ON | ON |

*

- Compressors are operated in the order of descending priorities.
- Compressors may operate in a pattern other than those listed in above tables subject to the operating conditions.
- “Master unit”, and “slave unit” in this section are the names for control, and they will be transferred according to the priority of rotation system.

RXYQ40,42,44M

| STEP | Master unit INV | Slave unit1 INV | Slave unit2 INV | STD unit No.1 | STD unit No.2 | STD unit No.3 | STD unit No.4 | STD unit No.5 |
|---|---|---|---|---|---|---|---|---|
| 1 | 52Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 2 | 57Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 3 | 62Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 4 | 68Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 5 | 74Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 6 | 81Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 7 | 88Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 8 | 96Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 9 | 104Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 10 | 110Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 11 | 116Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 12 | 124Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 13 | 133Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 14 | 143Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 15 | 158Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 16 | 165Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 17 | 177Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 18 | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 19 | 202Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 20 | 210Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 21 | 52Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 22 | 74Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 23 | 96Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 24 | 116Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 25 | 133Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 26 | 158Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 27 | 177Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 28 | 202Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 29 | 210Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 30 | 52Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 31 | 88Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 32 | 124Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 33 | 158Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 34 | 189Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 35 | 210Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF | OFF |
| 36 | 52Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF | OFF |
| 37 | 88Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF | OFF |
| 38 | 124Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF | OFF |
| 39 | 158Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF | OFF |
| 40 | 189Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF | OFF |
| 41 | 210Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF | OFF |
| 42 | 52Hz | 189Hz | 189Hz | ON | ON | OFF | OFF | OFF |
| 43 | 104Hz | 189Hz | 189Hz | ON | ON | OFF | OFF | OFF |
| 44 | 143Hz | 189Hz | 189Hz | ON | ON | OFF | OFF | OFF |
| 45 | 189Hz | 189Hz | 189Hz | ON | ON | OFF | OFF | OFF |
| 46 | 210Hz | 189Hz | 189Hz | ON | ON | OFF | OFF | OFF |
| 47 | 52Hz | 189Hz | 189Hz | ON | ON | ON | OFF | OFF |
| 48 | 104Hz | 189Hz | 189Hz | ON | ON | ON | OFF | OFF |
| 49 | 143Hz | 189Hz | 189Hz | ON | ON | ON | OFF | OFF |
| 50 | 189Hz | 189Hz | 189Hz | ON | ON | ON | OFF | OFF |
| 51 | 210Hz | 189Hz | 189Hz | ON | ON | ON | OFF | OFF |
| 52 | 52Hz | 189Hz | 189Hz | ON | ON | ON | ON | OFF |
| 53 | 104Hz | 189Hz | 189Hz | ON | ON | ON | ON | OFF |
| 54 | 143Hz | 189Hz | 189Hz | ON | ON | ON | ON | OFF |
| 55 | 189Hz | 189Hz | 189Hz | ON | ON | ON | ON | OFF |
| 56 | 210Hz | 189Hz | 189Hz | ON | ON | ON | ON | OFF |
| 57 | 52Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON |
| 58 | 104Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON |
| 59 | 143Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON |
| 60 | 189Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON |
| 61 | 210Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON |
| 62 | 210Hz | 210Hz | 210Hz | ON | ON | ON | ON | ON |

*

- Compressors are operated in the order of descending priorities.
- Compressors may operate in a pattern other than those listed in above tables subject to on the operating conditions.
- “Master unit”, “slave unit 1” and “slave unit 2” in this section are the names for control, and they will be transferred according to the priority of rotation system.

RXYQ46,48M

| STEP | Master unit INV | Slave unit1 INV | Slave unit2 INV | STD unit No.1 | STD unit No.2 | STD unit No.3 | STD unit No.4 | STD unit No.5 | STD unit No.6 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 52Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 2 | 57Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 3 | 62Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 4 | 68Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 5 | 74Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 6 | 81Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 7 | 88Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 8 | 96Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 9 | 104Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 10 | 110Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 11 | 116Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 12 | 124Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 13 | 133Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 14 | 143Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 15 | 158Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 16 | 165Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 17 | 177Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 18 | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 19 | 202Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 20 | 210Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 21 | 52Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 22 | 74Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 23 | 96Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 24 | 116Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 25 | 133Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 26 | 158Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 27 | 177Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 28 | 202Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 29 | 210Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF | OFF |
| 30 | 52Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 31 | 88Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 32 | 124Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 33 | 158Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 34 | 189Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 35 | 210Hz | 189Hz | 189Hz | OFF | OFF | OFF | OFF | OFF | OFF |
| 36 | 52Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF | OFF | OFF |
| 37 | 88Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF | OFF | OFF |
| 38 | 124Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF | OFF | OFF |
| 39 | 158Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF | OFF | OFF |
| 40 | 189Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF | OFF | OFF |
| 41 | 210Hz | 189Hz | 189Hz | ON | OFF | OFF | OFF | OFF | OFF |
| 42 | 52Hz | 189Hz | 189Hz | ON | ON | OFF | OFF | OFF | OFF |
| 43 | 104Hz | 189Hz | 189Hz | ON | ON | OFF | OFF | OFF | OFF |
| 44 | 143Hz | 189Hz | 189Hz | ON | ON | OFF | OFF | OFF | OFF |
| 45 | 189Hz | 189Hz | 189Hz | ON | ON | OFF | OFF | OFF | OFF |
| 46 | 210Hz | 189Hz | 189Hz | ON | ON | OFF | OFF | OFF | OFF |
| 47 | 52Hz | 189Hz | 189Hz | ON | ON | ON | OFF | OFF | OFF |
| 48 | 104Hz | 189Hz | 189Hz | ON | ON | ON | OFF | OFF | OFF |
| 49 | 143Hz | 189Hz | 189Hz | ON | ON | ON | OFF | OFF | OFF |
| 50 | 189Hz | 189Hz | 189Hz | ON | ON | ON | OFF | OFF | OFF |
| 51 | 210Hz | 189Hz | 189Hz | ON | ON | ON | OFF | OFF | OFF |
| 52 | 52Hz | 189Hz | 189Hz | ON | ON | ON | ON | OFF | OFF |
| 53 | 104Hz | 189Hz | 189Hz | ON | ON | ON | ON | OFF | OFF |
| 54 | 143Hz | 189Hz | 189Hz | ON | ON | ON | ON | OFF | OFF |
| 55 | 189Hz | 189Hz | 189Hz | ON | ON | ON | ON | OFF | OFF |
| 56 | 210Hz | 189Hz | 189Hz | ON | ON | ON | ON | OFF | OFF |
| 57 | 52Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON | OFF |
| 58 | 104Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON | OFF |
| 59 | 143Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON | OFF |
| 60 | 189Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON | OFF |
| 61 | 210Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON | OFF |
| 62 | 52Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON | ON |
| 63 | 104Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON | ON |
| 64 | 143Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON | ON |
| 65 | 189Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON | ON |
| 66 | 210Hz | 189Hz | 189Hz | ON | ON | ON | ON | ON | ON |
| 67* | 210Hz | 210Hz | 210Hz | ON | ON | ON | ON | ON | ON |

*****) Only for 50Hz

*****

- Compressors are operated in the order of descending priorities.
- Compressors may operate in a pattern other than those listed in above tables subject to on the operating conditions.
- “Master unit”, “slave unit 1” and “slave unit 2” in this section are the names for control, and they will be transferred according to the priority of rotation system.

## 2.3 Electronic Expansion Valve PI Control

### Main Motorized Valve EV1 Control

Carries out the motorized valve (Y1E) PI control to maintain the evaporator outlet superheated degree (SH) at constant during heating operation to make maximum use of the outdoor unit heat exchanger (evaporator).

| | |
|---|---|
| SH = Ts - Te | SH : Evaporator outlet superheated degree (°C) |
| | Ts : Suction pipe temperature detected by thermistor R2T (°C) |
| | Te : Low pressure equivalent saturation temperature (°C) |

The optimum initial value of the evaporator outlet superheated degree is 5°C, but varies depending on the discharge pipe superheated degree of inverter compressor.

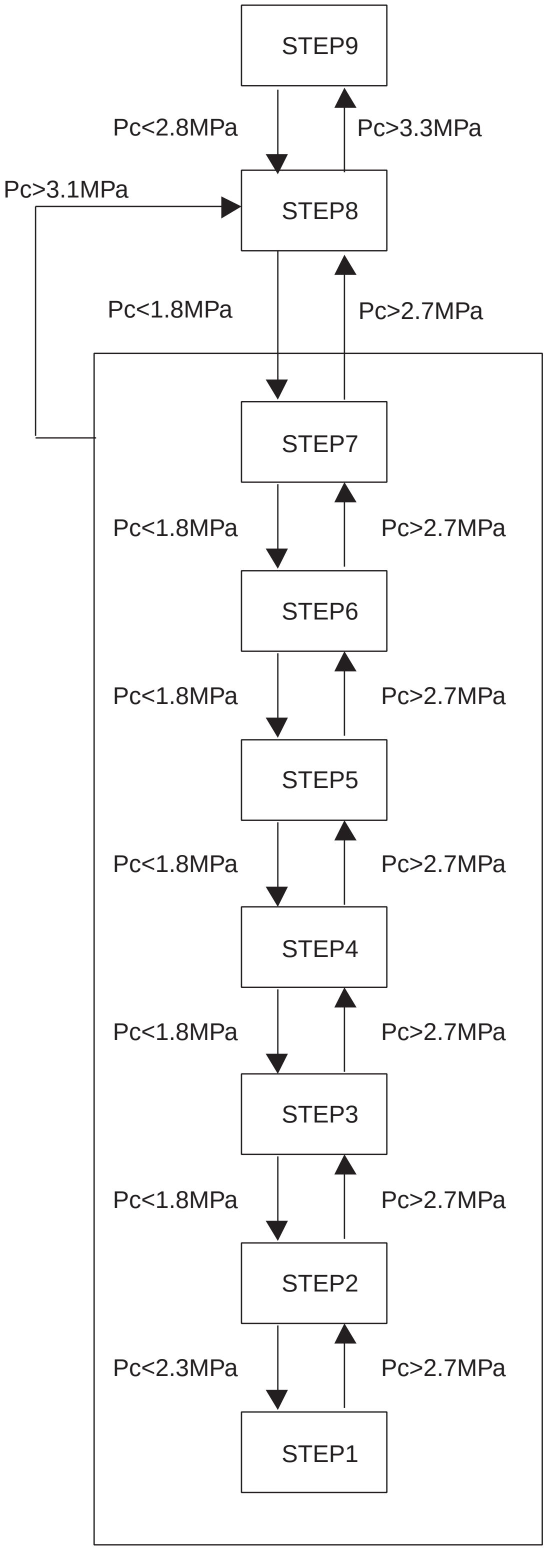
### Subcooling Motorized Valve EV2 Control

Makes PI control of the motorized valve (Y2E) to keep the superheated degree of the outlet gas pipe on the evaporator side for the full use of the subcooling heat exchanger.

| | |
|---|---|
| SH = Tsh -Te | SH : Outlet superheated degree of evaporator (°C) |
| | Tsh : Suction pipe temperature detected with the thermistor R5T (°C) |
| | Te : Low pressure equivalent saturation temperature (°C) |

# 2.4 Cooling Operation Fan Control

In cooling operation with low outdoor air temperature, this control is used to provide the adequate amount of circulation air with liquid pressure secured by high pressure control using outdoor unit fan.




Pc: HP pressure sensor detection value

Fan Steps

| | RXYQ5M | RXYQ 8 and 10M | RXYQ 12 to 16M |
|---|---|---|---|
| STEP1 | 0rpm | 0rpm | 0rpm |
| STEP2 | 300rpm | 300rpm | 300rpm |
| STEP3 | 320rpm | 320rpm | 325rpm |
| STEP4 | 340rpm | 345rpm | 355rpm |
| STEP5 | 370rpm | 385rpm | 400rpm |
| STEP6 | 440rpm | 465rpm | 500rpm |
| STEP7 | 535rpm | 575rpm | 630rpm |
| STEP8 | 515rpm | 785rpm | 880rpm |
| STEP9 | 750rpm | 825rpm | 920rpm |

# 3. Special Control

## 3.1 Startup Control

### 3.1.1 Startup Control in Cooling Operation

| Actuator | Operation | Remarks |
|---|---|---|
| Compressor | Differential pressure control | Compressor operating frequency increases by 1 step / 20 sec until Pc - Pe>0.4 MPa. |
| Outdoor unit fan | High pressure control | Initial compressor operating frequency is set to STEP 1.<br>1-step increase with Pc>2.2 MPa<br>1-step decrease with Pc<1.8 MPa |
| Four way valve | OFF | — |
| Main motorized valve (EV1) | 0 pls | — (RXYQ5M : 1400pls) |
| Subcooling motorized valve (EV2) | 0 pls | — |
| Hot gas bypass valve (SVP) | ON | — |
| Oil equalization valve (SVO) | ON | In the case of multi-outdoor-unit system, this valve repeats ON/OFF operation at regular intervals of time to equalize the oil level of each outdoor unit. |
| Receiver gas charging valve (SVL) | OFF | — |
| Receiver gas discharging valve (SVG) | OFF | — |
| Non-operating unit gas discharging valve (SVSG) | OFF | — |
| Non-operating unit liquid pipe stop valve (SVSL) | ON | — |
| Ending conditions | or [ • 200 sec. • Pc - Pe>0.4 MPa ] | |

* In the case of multi-outdoor-unit system, both master and slave units perform the operations listed in the table above.
* Actuators are based on RXYQ16M.

### 3.1.2 Startup Control in Heating Operation

| Actuator | Operation | Remarks |
|---|---|---|
| Compressor | Differential pressure control | Compressor operating frequency increases by 1 step / 20 sec until Pc - Pe>0.4 MPa. |
| Outdoor unit fan | STEP9 | — |
| Four way valve | ON | — |
| Main motorized valve (EV1) | 200 pls | — |
| Subcooling motorized valve (EV2) | 0 pls | — |
| Hot gas bypass valve (SVP) | ON | — |
| Oil equalization valve (SVO) | ON | In the case of multi-outdoor-unit system, this valve repeats ON/OFF operation at regular intervals of time to equalize the oil level of each outdoor unit. |
| Receiver gas charging valve (SVL) | OFF | — |
| Receiver gas discharging valve (SVG) | OFF | — |
| Non-operating unit gas discharging valve (SVSG) | OFF | — |
| Non-operating unit liquid pipe stop valve (SVSL) | ON | — |
| Ending conditions | or [ • 200 sec. • Pc - Pe>0.4 MPa ] | |

* In the case of multi-outdoor-unit system, both master and slave units perform the operations listed in the table above.
* Actuators are based on RXYQ16M.

# 3.2 Oil Return Operation

## 3.2.1 Oil Return Operation in Cooling Operation

| Outdoor unit actuator | Oil return preparation operation | Oil return operation | Post-oil-return operation |
|---|---|---|---|
| Compressor | Upper limit control | 124 Hz + ON + OFF | 52 Hz + OFF + OFF |
| Outdoor unit fan | Fan control | Fan control | Fan control |
| Four way valve | OFF | OFF | OFF |
| Main motorized valve (EV1)<br>*****Value in ( ) are for RXYQ5M only. | 0 pls (1400pls) | 0 pls (1400pls) | 0 pls (1400pls) |
| Subcooling motorized valve (EV2) | SH control | 0 pls | 0 pls |
| Hot gas bypass valve (SVP) | OFF | ON | ON |
| Oil equalization valve (SVO) | ON | ON | ON |
| Receiver gas charging valve (SVL) | OFF | OFF | OFF |
| Receiver gas discharging valve (SVG) | OFF | OFF | OFF |
| Non-operating unit gas discharging valve (SVSG) | OFF | OFF | OFF |
| Non-operating unit liquid pipe stop valve (SVSL) | ON | ON | ON |
| Ending conditions | 2 min. | or { • 6 min. • Ts - Te<5 } | 10 sec. |

* In the case of multi-outdoor-unit system,
  Master unit:Performs the operations listed in the table above.
  Slave units:Operating units perform the operations listed in the table above.
  Non-operating units perform the operations listed in the table above from the oil return operation.
  (Non-operating unit stops during “oil return preparation operation”.)
* Actuators are based on RXYQ16M.

| Indoor unit actuator | | Cooling oil return operation |
|---|---|---|
| Fan | Thermostat ON unit | Set Air Volume |
| | Stopping unit | OFF |
| | Thermostat OFF unit | OFF |
| Electronic expansion valve | Thermostat ON unit | Normal opening |
| | Stopping unit | 200 pls |
| | Thermostat OFF unit | 200 pls |

### 3.2.2 Oil Return Operation in Heating Operation

| Outdoor Unit Actuator | Oil return preparation operation | Oil return operation | Post-oil-return operation |
|---|---|---|---|
| Compressor | Upper limit control | 124 Hz + ON + OFF | 1-step increase from (74 Hz + OFF + OFF) to (Pc - Pe>0.4 MPa) time |
| Outdoor unit fan | STEP8<br>or<br>STEP9 | OFF | STEP9 |
| Four way valve | ON | OFF | ON |
| Main motorized valve (EV1)<br>*Value in ( ) are for RXYQ5M only. | SH control | 0 pls (1400pls) | 180 pls |
| Subcooling motorized valve (EV2) | 0 pls | 0 pls | 0 pls |
| Hot gas bypass valve (SVP) | OFF | ON | ON |
| Oil equalization valve (SVO) | ON | ON | ON |
| Receiver gas charging valve (SVL) | OFF | OFF | OFF |
| Receiver gas discharging valve (SVG) | OFF | OFF | OFF |
| Non-operating unit gas discharging valve (SVSG) | OFF | OFF | OFF |
| Non-operating unit liquid pipe stop valve (SVSL) | ON | ON | ON |
| Ending conditions | 2 min. | or [• 6 min. • Ts - Te<5] | or [• 160 sec. • Pc - Pe>0.4MPa] |

* In the case of multi-outdoor-unit system,
  Master unit:Performs the operations listed in the table above.
  Slave units:Operating units perform the operations listed in the table above.
  Non-operating units perform the operations listed in the table above from the oil return operation.
  (Non-operating unit stops during “oil return preparation operation”.)
* Actuators are based on RXYQ16M.

| Indoor unit actuator | | Heating oil return operation |
|---|---|---|
| Fan | Thermostat ON unit | OFF |
| | Stopping unit | OFF |
| | Thermostat OFF unit | OFF |
| Electronic expansion valve | Thermostat ON unit | 512 pls |
| | Stopping unit | 512 pls |
| | Thermostat OFF unit | 512 pls |

<In condition of oil return operation>
Compressor cumulative operation time > 8 hours
(However, 2 hours after turning power on first time.)

# 3.3 Defrosting Operation

| Outdoor unit actuator | Defrost preparation operation | Defrost operation | Post Defrost operation |
|---|---|---|---|
| Compressor | Upper limit control | 143 Hz + ON + ON | 1-step increase from (74 Hz + OFF + OFF) to (Pc - Pe>0.4 MPa) |
| Outdoor unit fan | STEP8 or STEP9 | OFF | STEP9 |
| Four way valve | ON | OFF | ON |
| Main motorized valve (EV1) *Value in ( ) are for RXYQ5M only. | SH control | 0 pls (1400pls) | 200 pls |
| Subcooling motorized valve (EV2) | 0 pls | 0 pls | 0 pls |
| Hot gas bypass valve (SVP) | OFF | ON | ON |
| Oil equalization valve (SVO) | ON | ON | ON |
| Receiver gas charging valve (SVL) | OFF | OFF | OFF |
| Receiver gas discharging valve (SVG) | OFF | OFF | OFF |
| Non-operating unit gas discharging valve (SVSG) | OFF | OFF | OFF |
| Non-operating unit liquid pipe stop valve (SVSL) | ON | ON | ON |
| Ending conditions | 2 min. | or [ • 12 min. • Ts >11°C ] | or [ • 160 sec. • Pc - Pe>0.4MPa ] |

* In the case of multi-outdoor-unit system,
Master unit:Performs the operations listed in the table above.
Slave units:Operating units perform the operations listed in the table above.
Non-operating units perform the operations listed in the table above from the Defrost operation.
(Non-operating unit stops during “Defrost preparation operation”.)
* Actuators are based on RXYQ16M.

| Indoor unit actuator | | During defrost |
|---|---|---|
| Fan | Thermostat ON unit | OFF |
| | Stopping unit | OFF |
| | Thermostat OFF unit | OFF |
| Electronic expansion valve | Thermostat ON unit | 512 pls |
| | Stopping unit | 512 pls |
| | Thermostat OFF unit | 512 pls |

<Defrost starting condition>
Defrost operation is started when the outdoor heat exchanger temperature becomes lower than deicer temperature.
Defrost operation is conducted once in max. 2 hours.

# 3.4 Pump-down Residual Operation

## 3.4.1 Pump-down Residual Operation in Cooling Operation

| Actuator | Master unit operation | Slave unit operation |
|---|---|---|
| Compressor | 210 Hz + OFF + OFF | OFF |
| Outdoor unit fan | Fan control | OFF |
| Four way valve | OFF | OFF |
| Main motorized valve (EV1)<br>*Value in ( ) are for RXYQ5M only. | 0 pls (1400pls) | 0 pls |
| Subcooling motorized valve (EV2) | 0 pls | 0 pls |
| Hot gas bypass valve (SVP) | ON | OFF |
| Oil equalization valve (SVO) | ON | OFF |
| Receiver gas charging valve (SVL) | OFF | OFF |
| Receiver gas discharging valve (SVG) | ON | ON |
| Non-operating unit gas discharging valve (SVSG) | OFF | ON |
| Non-operating unit liquid pipe stop valve (SVSL) | ON | ON |
| Ending conditions | or • 5 min.<br>• Pe<0.5 MPa<br>• Td>110°C | |

* Actuators are based on RXYQ16M.

## 3.4.2 Pump-down Residual Operation in Heating Operation

| Actuator | Master unit operation | Slave unit operation |
|---|---|---|
| Compressor | 124 Hz + OFF + OFF | OFF |
| Outdoor unit fan | STEP8 | STEP5 |
| Four way valve | ON | ON |
| Main motorized valve (EV1) | 0 pls | 0 pls |
| Subcooling motorized valve (EV2) | 0 pls | 0 pls |
| Hot gas bypass valve (SVP) | ON | OFF |
| Oil equalization valve (SVO) | ON | OFF |
| Receiver gas charging valve (SVL) | OFF | OFF |
| Receiver gas discharging valve (SVG) | ON | ON |
| Non-operating unit gas discharging valve (SVSG) | OFF | ON |
| Non-operating unit liquid pipe stop valve (SVSL) | ON | ON |
| Ending conditions | or • 30 sec.<br>• Pe<0.25 MPa<br>• Td>110°C | |

* Actuators are based on RXYQ16M.

# 3.5 Restart Standby

| Actuator | Operation | Remarks |
|---|---|---|
| Compressor | OFF | — |
| Outdoor unit fan | Ta>30°C: STEP5<br>Ta≤30°C: OFF | — |
| Four way valve | Holds ON | — |
| Main motorized valve (EV1) | 0 pls | — |
| Subcooling motorized valve (EV2) | 0 pls | — |
| Hot gas bypass valve (SVP) | OFF | In the case of RXYQ5M , this valve turns ON. |
| Oil equalization valve (SVO) | ON | In the case of slave units, this valve turns OFF. |
| Receiver gas charging valve (SVL) | OFF | — |
| Receiver gas discharging valve (SVG) | OFF | — |
| Non-operating unit gas discharging valve (SVSG) | OFF | — |
| Non-operating unit liquid pipe stop valve (SVSL) | ON | — |
| Ending conditions | 5 min. | — |

* Actuators are based on RXYQ16M.

# 3.6 Stopping Operation

## 3.6.1 When System is in Stop Mode

| Actuator | Operation |
|---|---|
| Compressor | OFF |
| Outdoor unit fan | OFF |
| Four way valve | Holds ON |
| Main motorized valve (EV1) | 0 pls |
| Subcooling motorized valve (EV2) | 0 pls |
| Hot gas bypass valve (SVP) | OFF |
| Oil equalization valve (SVO) | OFF |
| Receiver gas charging valve (SVL) | OFF |
| Receiver gas discharging valve (SVG) | OFF |
| Non-operating unit gas discharging valve (SVSG) | OFF |
| Non-operating unit liquid pipe stop valve (SVSL) | ON |
| Ending conditions | Indoor unit thermostat is turned ON. |

* Actuators are based on RXYQ16M.

### 3.6.2 Stopping Operation of Slave Units During Master Unit is in Operation With Multi-Outdoor-Unit System

In cooling operation: The system operates in Mode A or Mode B listed in the table below.

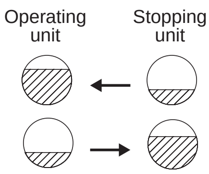
| Actuator | Mode-A operation | Mode-B operation |
|---|---|---|
| Compressor | OFF | OFF |
| Outdoor unit fan | STEP4 | OFF |
| Four way valve | OFF | Holds ON |
| Main motorized valve (EV1) | 150 pls to 300 pls | 0 pls |
| Subcooling motorized valve (EV2) | 0 pls | 0 pls |
| Hot gas bypass valve (SVP) | OFF | OFF |
| Oil equalization valve (SVO) | OFF | OFF |
| Receiver gas charging valve (SVL) | OFF | OFF |
| Receiver gas discharging valve (SVG) | OFF | OFF |
| Non-operating unit gas discharging valve (SVSG) | ON | ON |
| Non-operating unit liquid pipe stop valve (SVSL) | OFF | ON |
| Mode transition conditions | To Mode B when Tc−Tl >0.27x(Tc − Ta) +6 | To Mode A when gas shortage signal is sent from indoor unit |
| Ending conditions | Slave units are required to operate. | |

In heating operation: The system operates in Mode A or Mode B listed in the table below.

| Actuator | Mode-A operation | Mode-B operation |
|---|---|---|
| Compressor | OFF | OFF |
| Outdoor unit fan | STEP2 | STEP2 |
| Four way valve | ON | ON |
| Main motorized valve (EV1) | 0 pls | 0 pls |
| Subcooling motorized valve (EV2) | 0 pls | 0 pls |
| Hot gas bypass valve (SVP) | OFF | OFF |
| Oil equalization valve (SVO) | OFF | OFF |
| Receiver gas charging valve (SVL) | ON | OFF |
| Receiver gas discharging valve (SVG) | OFF | OFF |
| Non-operating unit gas discharging valve (SVSG) | ON | ON |
| Non-operating unit liquid pipe stop valve (SVSL) | OFF | ON |
| Mode transition conditions | To Mode B when Tc−mean temperature of indoor unit liquid pipes>10×C | To Mode A when motorized valve of operating outdoor unit fully opens. |
| Ending conditions | Slave units are required to operate. | |

∗ Mode A or B operation

- Mode A : Operating unit collects refrigerant.
- Mode B : Stopping unit storage refrigerant.




The changeover operation for mode A and B is performed for the reason that the required refrigerant amount varies depending on the indoor unit operation capacity.

# 3.7 Pressure Equalization prior to Startup

| Actuator | Operation | Remarks |
|---|---|---|
| Compressor | OFF | — |
| Outdoor unit fan | Cooling:OFF<br>Heating:STEP 4 | — |
| Four way valve | Holds ON | — |
| Main motorized valve (EV1) | 0 pls | — |
| Subcooling motorized valve (EV2) | 0 pls | — |
| Hot gas bypass valve (SVP) | OFF | In the case of RXYQ5M, this valve turns ON. |
| Oil equalization valve (SVO) | OFF | — |
| Receiver gas charging valve (SVL) | OFF | — |
| Receiver gas discharging valve (SVG) | OFF | — |
| Non-operating unit gas discharging valve (SVSG) | OFF | — |
| Non-operating unit liquid pipe stop valve (SVSL) | OFF | — |
| Ending conditions | 10 sec. | In the case of RXYQ5M, 3 min. or Pc–Pe<0.2 MPa |

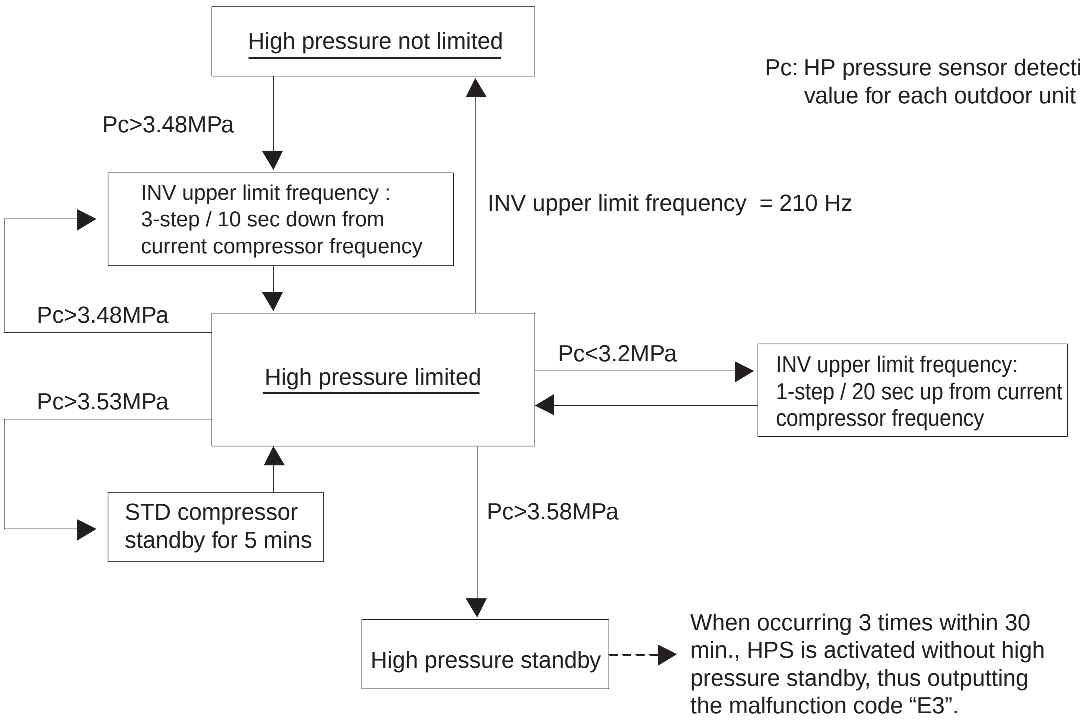
# 4. Protection Control

## 4.1 High Pressure Protection Control

This high pressure protection control is used to prevent the activation of protection devices due to abnormal increase of high pressure and to protect compressors against the transient increase of high pressure.

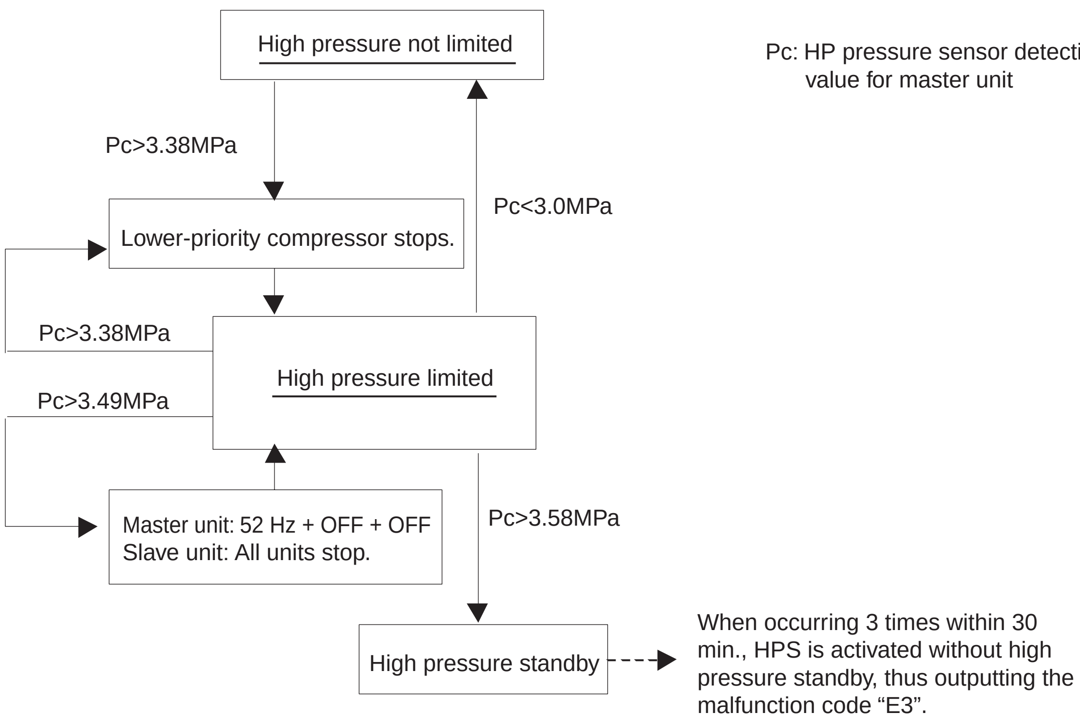
[In cooling operation]

★ In the case of multi-outdoor-unit system, each outdoor unit performs this control individually in the following sequence.




[In heating operation]

★ In the case of multi-outdoor-unit system, the entire system performs this control in the following sequence.

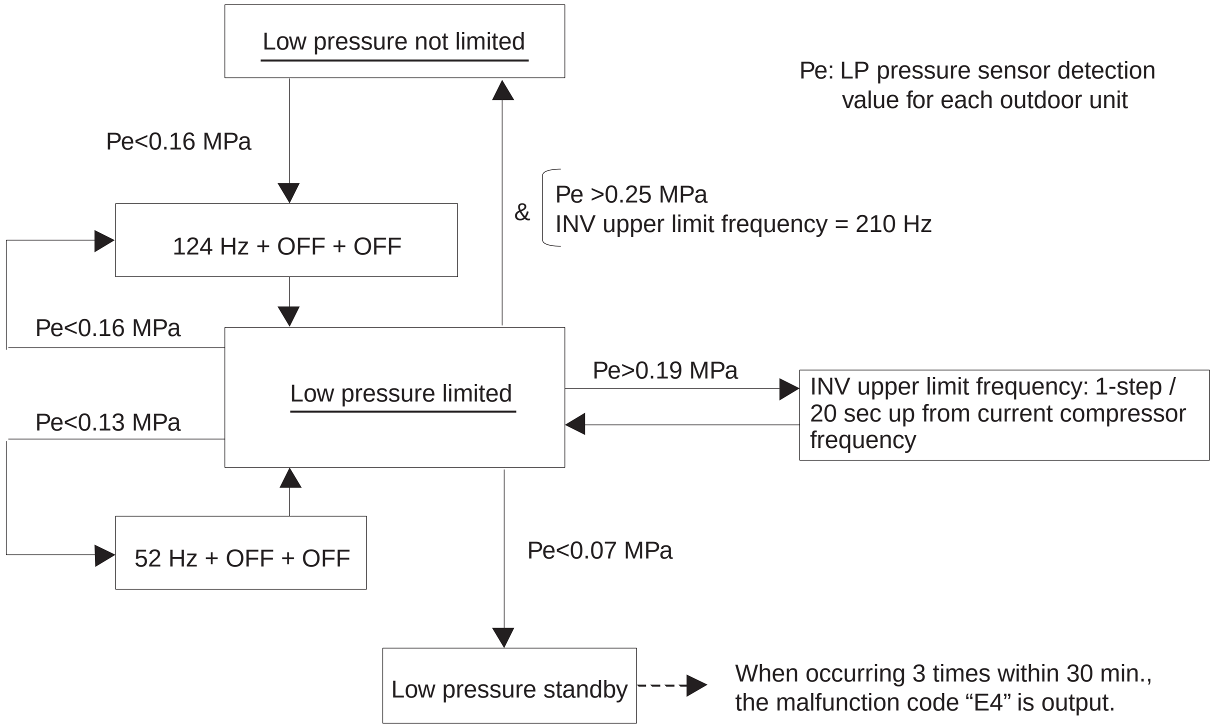


## 4.2 Low Pressure Protection Control

This low pressure protection control is used to protect compressors against the transient decrease of low pressure.

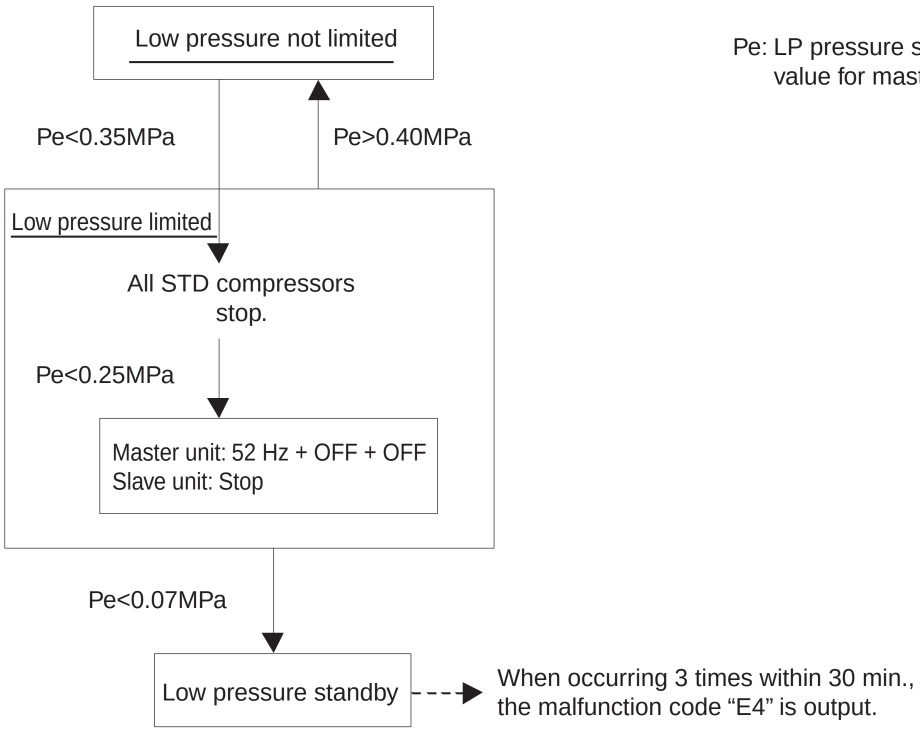
[In cooling operation]

★ In the case of multi-outdoor-unit system, the entire system performs this control in the following sequence.




[In heating operation]

★ In the case of multi-outdoor-unit system, each outdoor unit performs this control individually in the following sequence.

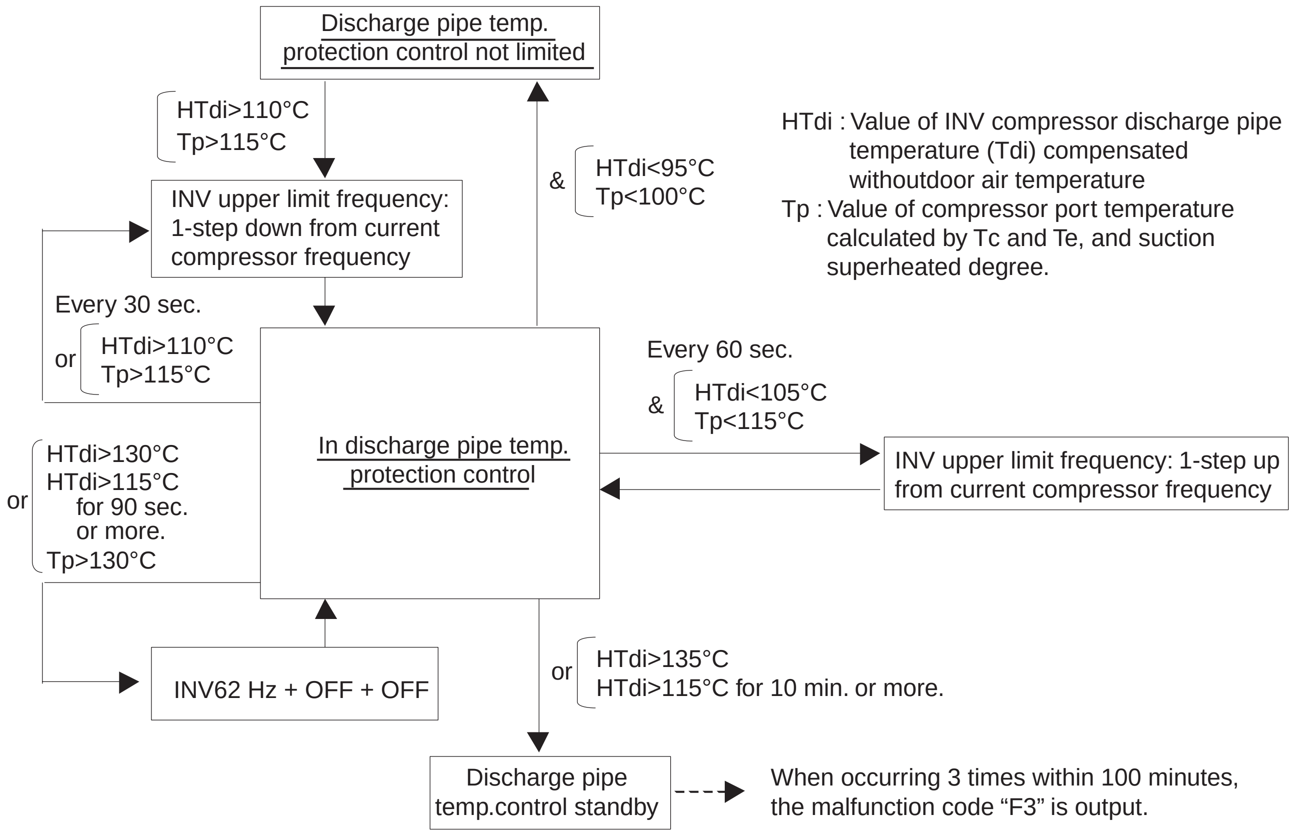


## 4.3 Discharge Pipe Protection Control

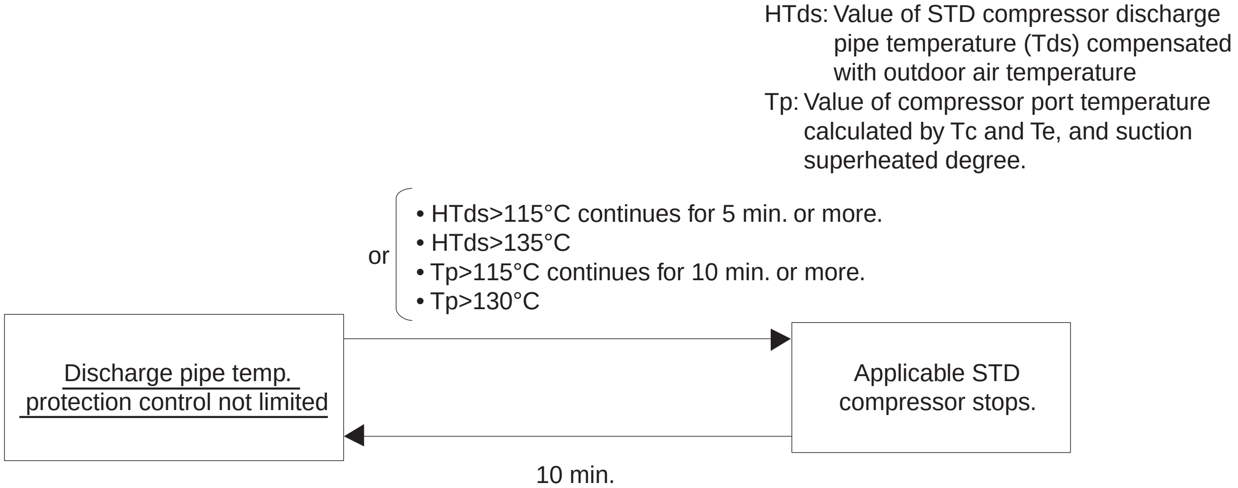
This discharge pipe protection control is used to protect the compressor internal temperature against a malfunction or transient increase of discharge pipe temperature.

★ Each compressor performs the discharge pipe temperature protection control individually in the following sequence.

[INV compressor]




[STD compressor]

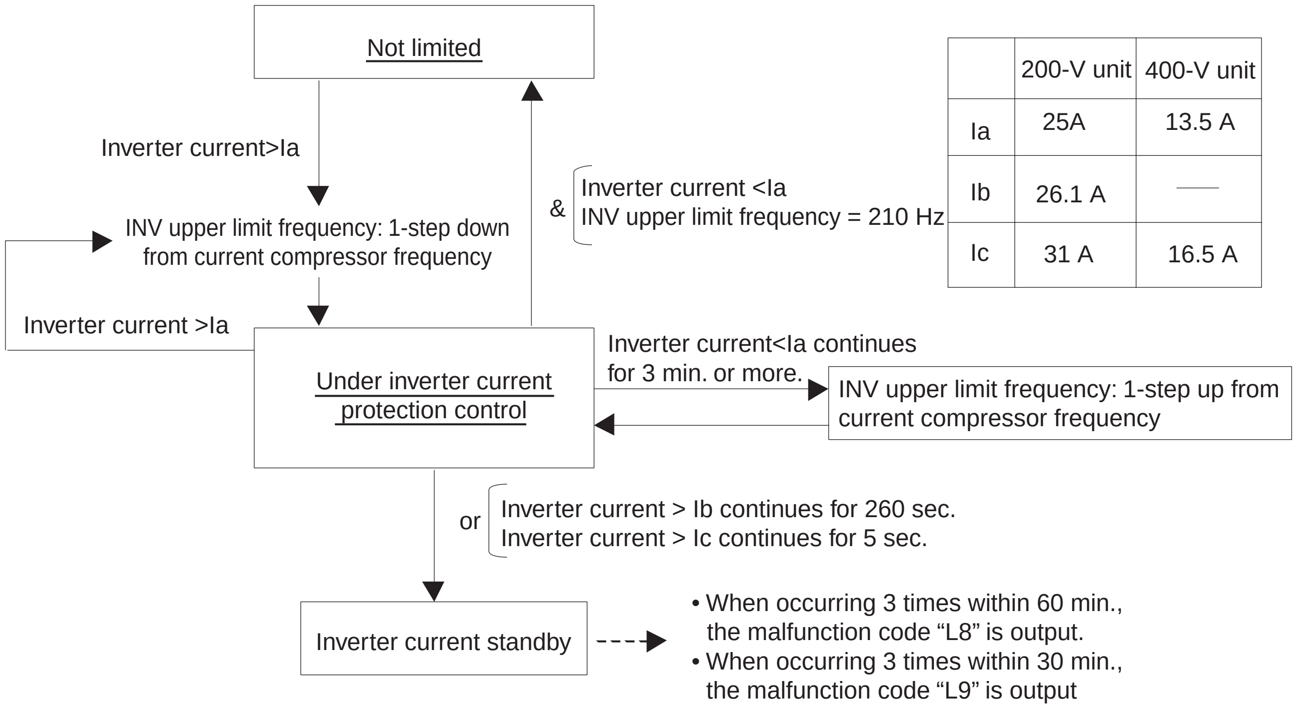


## 4.4 Inverter Protection Control

Inverter current protection control and inverter fin temperature control are performed to prevent tripping due to a malfunction, or transient inverter overcurrent, and fin temperature increase.

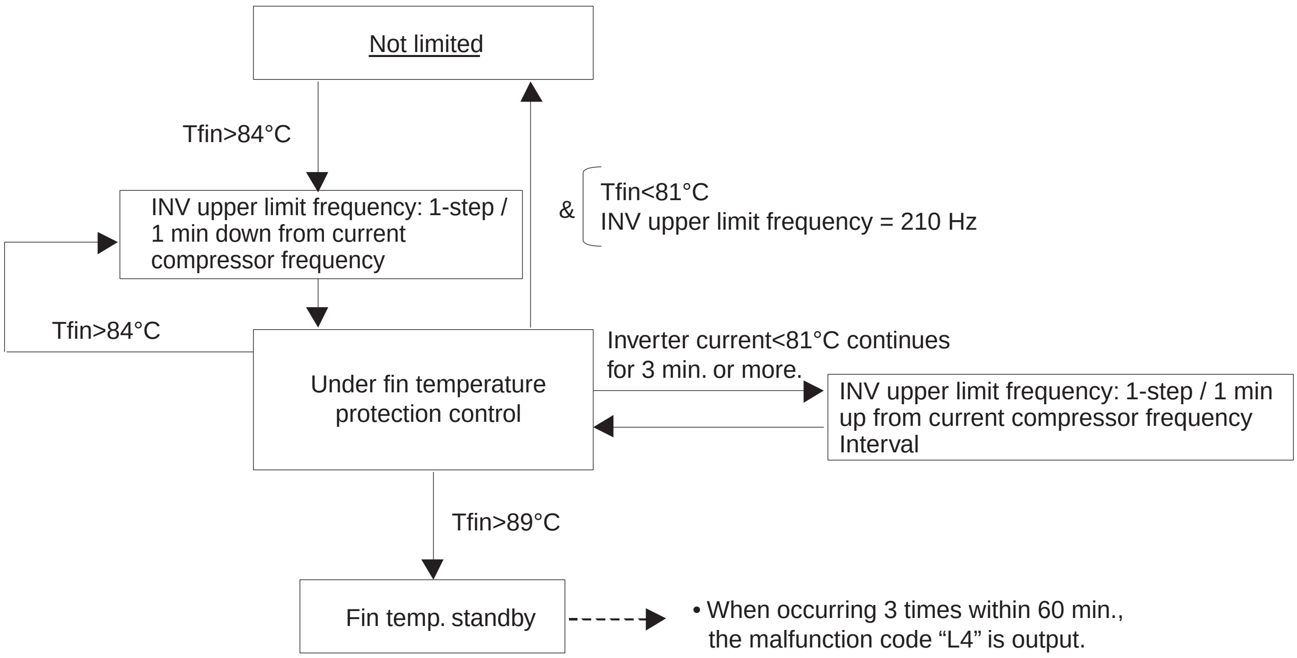
★ In the case of multi-outdoor-unit system, each INV compressor performs these controls in the following sequence.

[Inverter overcurrent protection control]



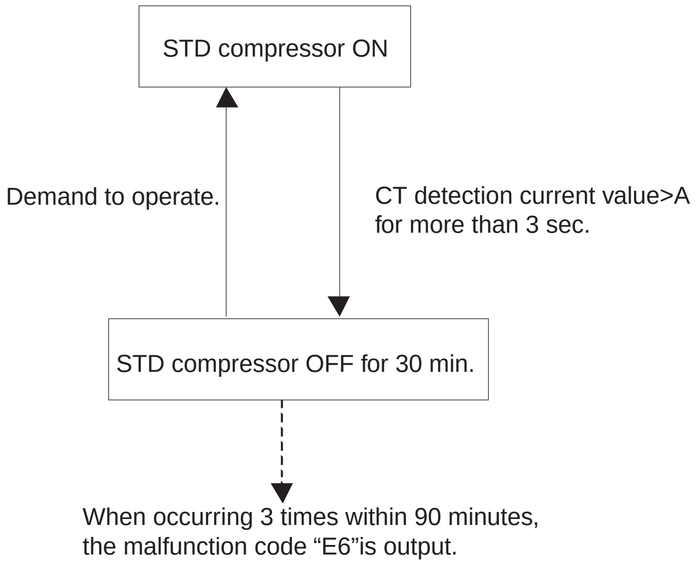

| | 200-V unit | 400-V unit |
|---|---|---|
| Ia | 25A | 13.5 A |
| Ib | 26.1 A | — |
| Ic | 31 A | 16.5 A |

[Inverter fin temperature control]



# 4.5 STD Compressor Overload Protection

This control is used to prevent abnormal heating due to overcurrent to the compressor resulting from failures of STD compressor such as locking.




| | 200- V unit | 400- V unit |
|---|---|---|
| A | 28.8A | 15.0A |

# 5. Other Control

## 5.1 Outdoor Unit Rotation

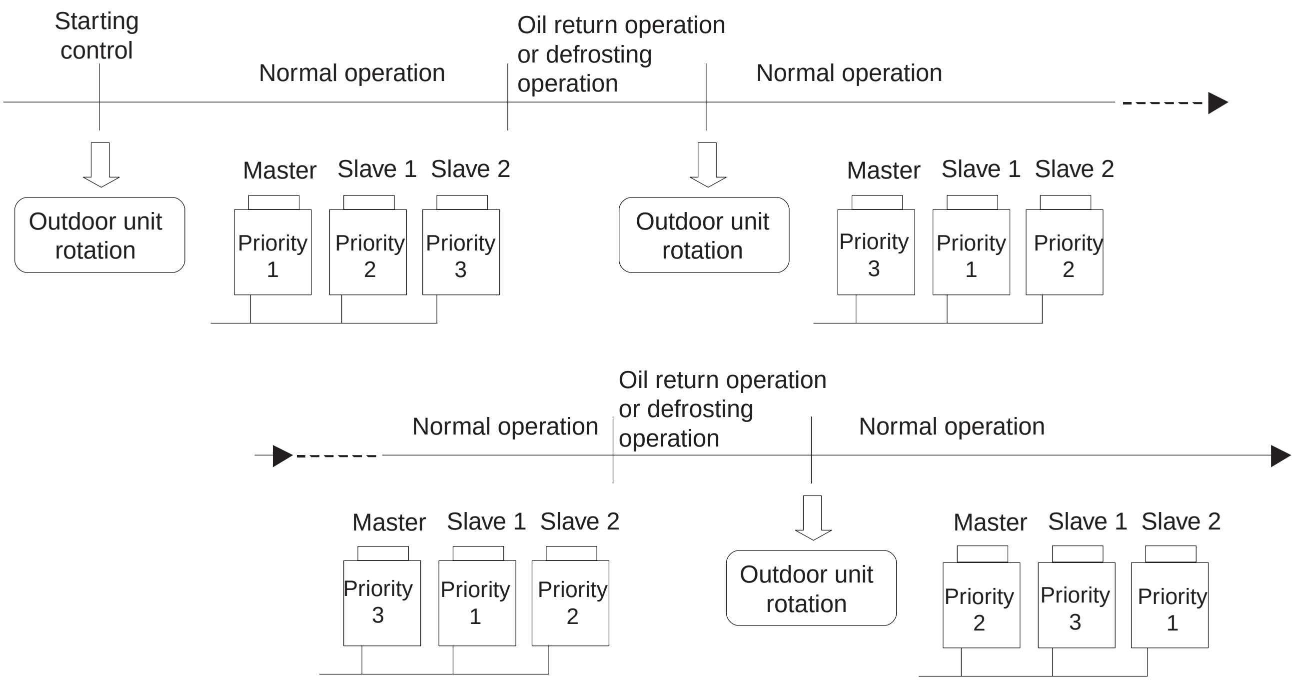
In the case of multi-outdoor-unit system, this outdoor unit rotation is used to prevent the compressor from burning out due to unbalanced oil level between outdoor units.

**[Details of outdoor unit rotation]**
In the case of multi-outdoor-unit system, each outdoor unit is given an operating priority for the control.
Outdoor unit rotation makes it possible to change the operating priority of outdoor units.
Thus, the system becomes free of compressors that stop over an extended period of time at the time of partial loading, preventing unbalanced oil level.

**[Timing of outdoor unit rotation]**

or
- After oil return operation
- After defrosting operation
- At the beginning of the starting control

Example) The following diagram shows outdoor unit rotation in combination of 3 outdoor units.




* “Master unit”, “slave unit 1” and “slave unit 2” in this section are the names for installation. They are determined in installation work, and not changed thereafter. (These names are different from “master unit” and “slave unit” for control.)
The outdoor unit connected the control wires (F1 and F2) for the indoor unit should be designated as master unit
Consequently, The LED display on the main PCB for “master unit”, “slave unit 1” and “slave unit 2” do not change. (Refer to the page 90.)

# 5.2 Emergency Operation

If the compressor cannot operate, this control inhibits any applicable compressor or outdoor unit from operating to perform emergency operation only with the operative compressor or outdoor unit.

> ⚠ **Caution**
> **"For making a compressor unable to operate due to malfunction, etc., be sure to conduct the work with emergency operation setting.**
> **Never execute work such as disconnection of the power cable from magnet contactor. (Otherwise, other normal compressors may malfunction.)**
> *** Because the units will be operated in the combination with which oil pressure equalization between compressors cannot be performed.**

## 5.2.1 Restrictions for Emergency Operation

- In the case of system with 1 outdoor unit installed, only when thermostats of indoor units having a capacity of 50% or more of the outdoor unit capacity turn ON, the emergency operation is functional. (If the total capacity of indoor units with thermostat ON is small, the outdoor unit cannot operate.)
- If the emergency operation is set while the outdoor unit is in operation, the outdoor unit stops once after pump-down residual operation (a maximum of 5 minutes elapsed).

## 5.2.2 In the Case of 1-Outdoor-Unit System (RXYQ8 to 16M)

- Emergency operation with settings in service mode

***** "Inhibition of operation" is set with each compressor.

- To inhibit INV compressor from operating → Set setting mode 2 from No. 0 to No. 2.

LED display (○:ON ●:OFF ◑:Blink)
H1P— — —H7P

| (Procedure) | LED display |
|---|---|
| (1) Press and hold the MODE button (BS1) for 5 sec. or more. | ○●●●●●● |
| (2) Press the RETURN button (BS3) once. | ○●●●●●◑ (Factory set) |
| (3) Press the SET button (BS2) one. | ○●●●●◑● |
| (4) Press the RETURN button (BS3) twice. | ○●●●●●● |
| (5) Press the MODE button (BS1) once. | ●●○●●●● |

- To inhibit STD1 and STD2 compressors from operating → Set setting mode 2 from No. 19 to No. 2. (RXYQ8M to RXYQ16M)

LED display (○:ON ●:OFF ◑:Blink)
H1P— — —H7P

| (Procedure) | LED display |
|---|---|
| (1) Press and hold the MODE button (BS1) for 5 sec. or more. | ○●●●●●● |
| (2) Press the SET button (BS2) 19 times. | ○●○●●○○ |
| (3) Press the RETURN button (BS3) once. | ○●●●●●◑ (Factory set) |
| (4) Press the SET button (BS2) once. | ○●●●●◑● |
| (5) Press the RETURN button (BS3) twice. | ○●●●●●● |
| (6) Press the MODE button (BS1) once. | ●●○●●●● |

- To inhibit STD2 compressor from operating → Set setting mode 2 from No. 19 to No.3.(RXYQ14M)

LED display (○:ON ●:OFF ◑:Blink)
H1P— — —H7P

| (Procedure) | LED display |
|---|---|
| (1) Press and hold the MODE button (BS1) for 5 sec. or more. | ○●●●●●● |
| (2) Press the SET button (BS2) 19 times. | ○●○●●○○ |
| (3) Press the RETURN button (BS3) once. | ○●●●●●◑ (Factory set) |
| (4) Press the SET button (BS2) twice. | ○●●●●◑◑ |
| (5) Press the RETURN button (BS3) twice. | ○●●●●●● |
| (6) Press the MODE button (BS1) once. | ●●○●●●● |

- With RXYQ14M and 16M, if INV compressor is inhibited from operating, only 1 STD compressor can operate for reasons of oil equalization.
- With RXYQ14M and 16M, STD1 compressor cannot be inhibited from operating for reasons of oil equalization.
- When 1 outdoor unit is installed (with RXYQ8M to 16M), automatic backup operation cannot be performed.

## 5.2.3 In The Case of Multi-Outdoor-Unit System (RXYQ18 to 48M)

Automatic backup operation
With multi-outdoor-unit system, if a certain outdoor unit system malfunctions (i.e., the system stops and indoor unit Remote Control displays the malfunction), by resetting the system with the indoor unit Remote Control, the applicable outdoor unit is inhibited from operating for 8 hours, thus making it possible to perform emergency operation automatically.
However, in the event any of the following malfunctions occurs, automatic backup operation can be performed.

<u>Malfunctions under which automatic backup operation can be performed:</u>

- E3, E4, E5, E7
- F3
- H7, H9
- J2, J3, J5, J6, J7, J9, JA, JC
- L3, L4, L5, L8, L9, LC
- U2, UJ

Emergency operation with settings in service mode

***** "Inhibition of operation" is set with each outdoor unit.

Make the following settings with the master unit. (Setting with the slave unit becomes disabled.)

***** Discriminate the operating status of the master unit/slave units through the following LED display.

LED display (○:ON ●:OFF ◑:Blink)
H1P— — —H7P H8P

| | H1P—H7P | H8P |
|---|---|---|
| Master: | ●●○●●●● | ○ |
| Slave 1: | ●●●●●●● | ◑ |
| Slave 2: | ●●●●●●● | ● |

(Factory set)

- To inhibit the master unit from operating → Set setting mode 2 from No. 38 to No. 2.

LED display (○:ON ●:OFF ◑:Blink)
H1P— — —H7P

| (Procedure) | H1P— — —H7P | |
|---|---|---|
| (1) Press and hold the MODE button (BS1) for 5 sec. or more. | ○●●●●●● | |
| (2) Press the SET button (BS2) 38 times. | ○○●●○○● | |
| (3) Press the RETURN button (BS3) once. | ○●●●●●◑ | (Factory set) |
| (4) Press the SET button (BS2) once. | ○●●●●◑● | |
| (5) Press the RETURN button (BS3) twice. | ○●●●●●● | |
| (6) Press the MODE button (BS1) once. | ●●○●●●● | |

- To inhibit the slave unit 1 from operating → Set setting mode 2 from No. 39 to No. 2.

LED display (○:ON ●:OFF ◑:Blink)
H1P— — —H7P

| (Procedure) | H1P— — —H7P | |
|---|---|---|
| (1) Press and hold the MODE button (BS1) for 5 sec. or more. | ○●●●●●● | |
| (2) Press the SET button (BS2) 39 times. | ○○●●○○○ | |
| (3) Press the RETURN button (BS3) once. | ○●●●●●◑ | (Factory set) |
| (4) Press the SET button (BS2) once. | ○●●●●◑● | |
| (5) Press the RETURN button (BS3) twice. | ○●●●●●● | |
| (6) Press the MODE button (BS1) once. | ●●○●●●● | |

• To inhibit the slave unit 2 from operating → Set setting mode 2 from No. 40 to No. 2.

| (Procedure) | LED display (○:ON ●:OFF ◑:Blink)<br>H1P— — —H7P | |
|---|---|---|
| (1) Press and hold the MODE button (BS1) for 5 sec. or more. | ○●●●●●● | |
| (2) Press the SET button (BS2) 40 times. | ○○●○●●● | |
| (3) Press the RETURN button (BS3) once. | ○●●●●●◑ | (Factory set) |
| (4) Press the SET button (BS2) once. | ○●●●●◑● | |
| (5) Press the RETURN button (BS3) twice. | ○●●●●●● | |
| (6) Press the MODE button (BS1) once. | ●●○●●●● | |

*
• In the case of multi-outdoor-unit system, "Inhibition of operation" is not set with each compressor individually.
• In the case of multi-outdoor-unit system, when the above "Inhibition of operation" is set, outdoor unit rotation is not functional.

**Note : Reset the power supply during the outdoor unit is stopping to cancel the automatic backup operation forcibly.**

# 5.3 Demand Operation

In order to save the power consumption, the capacity of outdoor unit is saved with control forcibly by using "Demand 1 Setting" or "Demand 2 Setting".
To operate the unit with this mode, additional setting of "Continuous Demand Setting" or external input by external control adapter is required.

**[Demand 1 setting]**

| Setting | Standard for upper limit of power consumption |
|---|---|
| Demand 1 setting 1 | Approx. 60% |
| Demand 1 setting 2 (factory setting) | Approx. 70% |
| Demand 1 setting 3 | Approx. 80% |

**[Demand 2 setting]**

| Setting | Standard for upper limit of power consumption |
|---|---|
| Demand 2 setting 1 | Approx. 30% * |
| Demand 2 setting 2 (factory setting) | Approx. 40% |
| Demand 2 setting 3 | Approx. 50% * |

*****Setting 1 and 3 are possible only by external contact input.
★ Other protection control functions have precedence over the above operation.

# 5.4 Heating operation prohibition

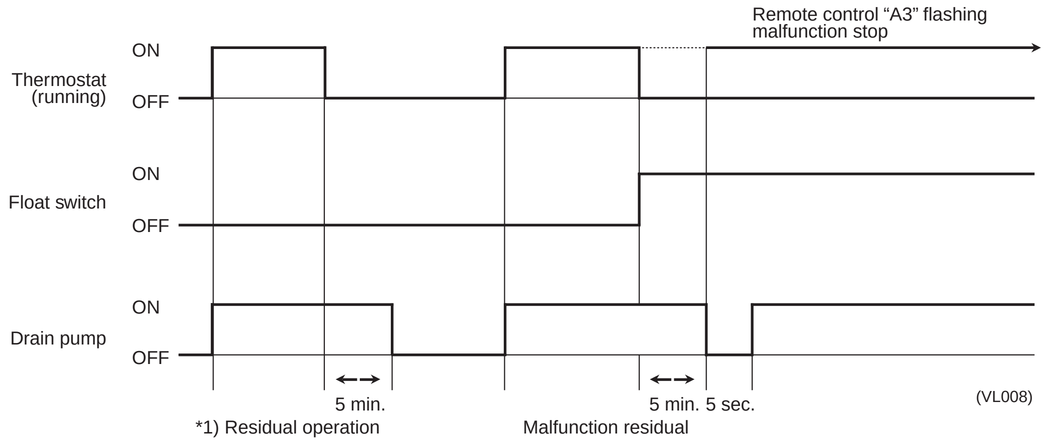
Heating operation is prohibited above 24°C ambient temperature.

# 6. Outline of Control (Indoor Unit)

## 6.1 Drain Pump Control

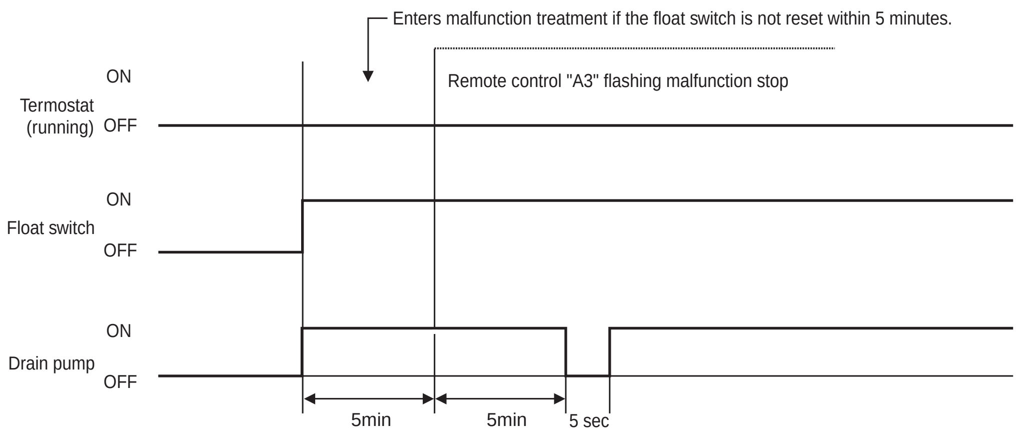
1. The drain pump is controlled by the ON/OFF buttons (4 button (1) - (4) given in the figure below).

### 6.1.1 When the Float Switch is Tripped While the Cooling Thermostat is ON:

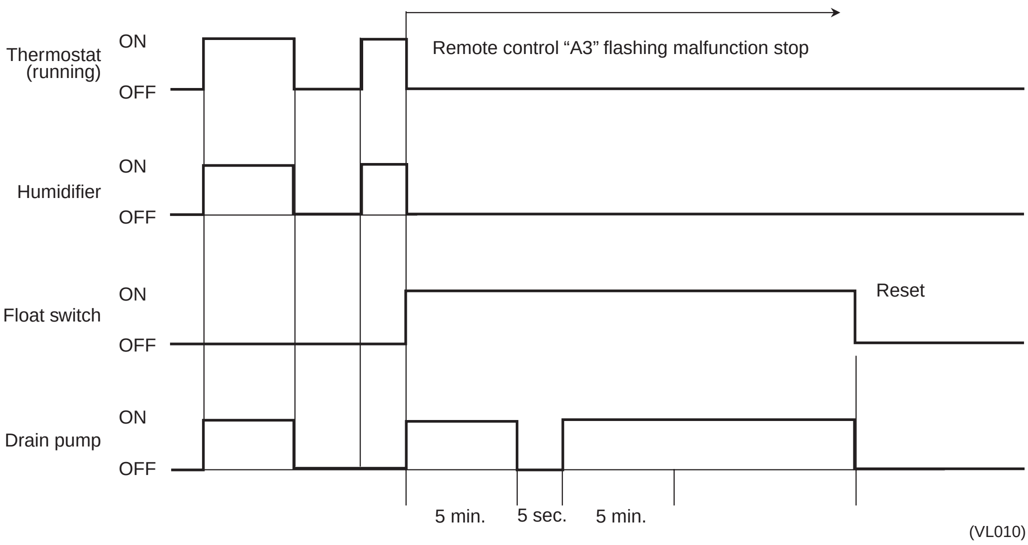



***** 1. The objective of residual operation is to completely drain any moisture adhering to the fin of the indoor unit heat exchanger when the thermostat goes off during cooling operation.

### 6.1.2 When the Float Switch is Tripped During Cooling OFF by Thermostat:

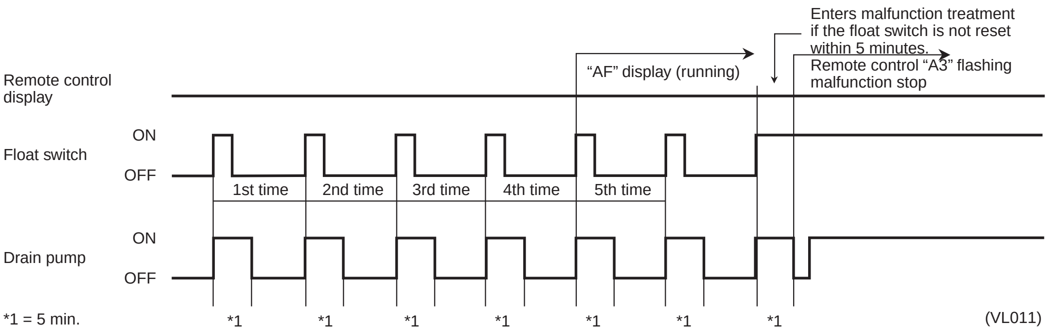


## 6.1.3 When the Float Switch is Tripped During Heating Operation:




During heating operation, if the float switch is not reset even after the 5 minutes operation, 5 seconds stop, 5 minutes operation cycle ends, operation continues until the switch is reset.

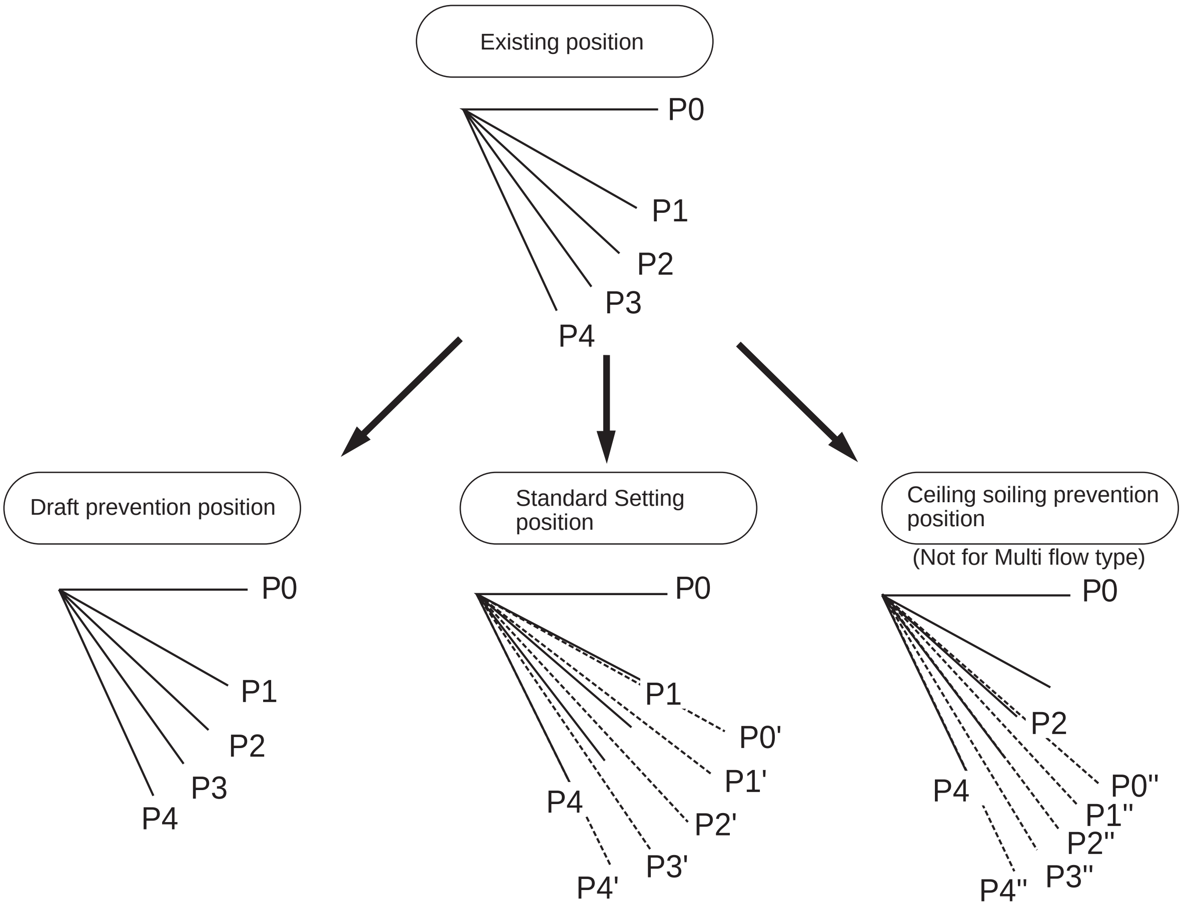
## 6.1.4 When the Float Switch is Tripped and “AF” is Displayed on the Remote Control:




**Note:** If the float switch is tripped five times in succession, a drain malfunction is determined to have occurred. “AF” is then displayed as operation continues.

# 6.2 Louver Control for Preventing Ceiling Dirt

We have added a control feature that allows you to select the range of in which air direction can be adjusted in order to prevent the ceiling surrounding the air discharge outlet of ceiling mounted cassette type units from being soiled. (This feature is available on double flow, multi-flow and corner types.)




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Draft prevention position | P0 | P1 | P2 | P3 | P4 | | Same as existing position |
| | | Range of direction adjustment | | | | | |
| Standard position | Prohibited | P0' | P1' | P2' | P3' | P4' | Separated into 5 positions (P1 - 4) |
| | | | Range of direction adjustment | | | | |
| Dirt prevention position | Prohibited | | P0'' | P1'' | P2'' | P3'' | P4'' | Separated into 5 positions (P2 - 4) |

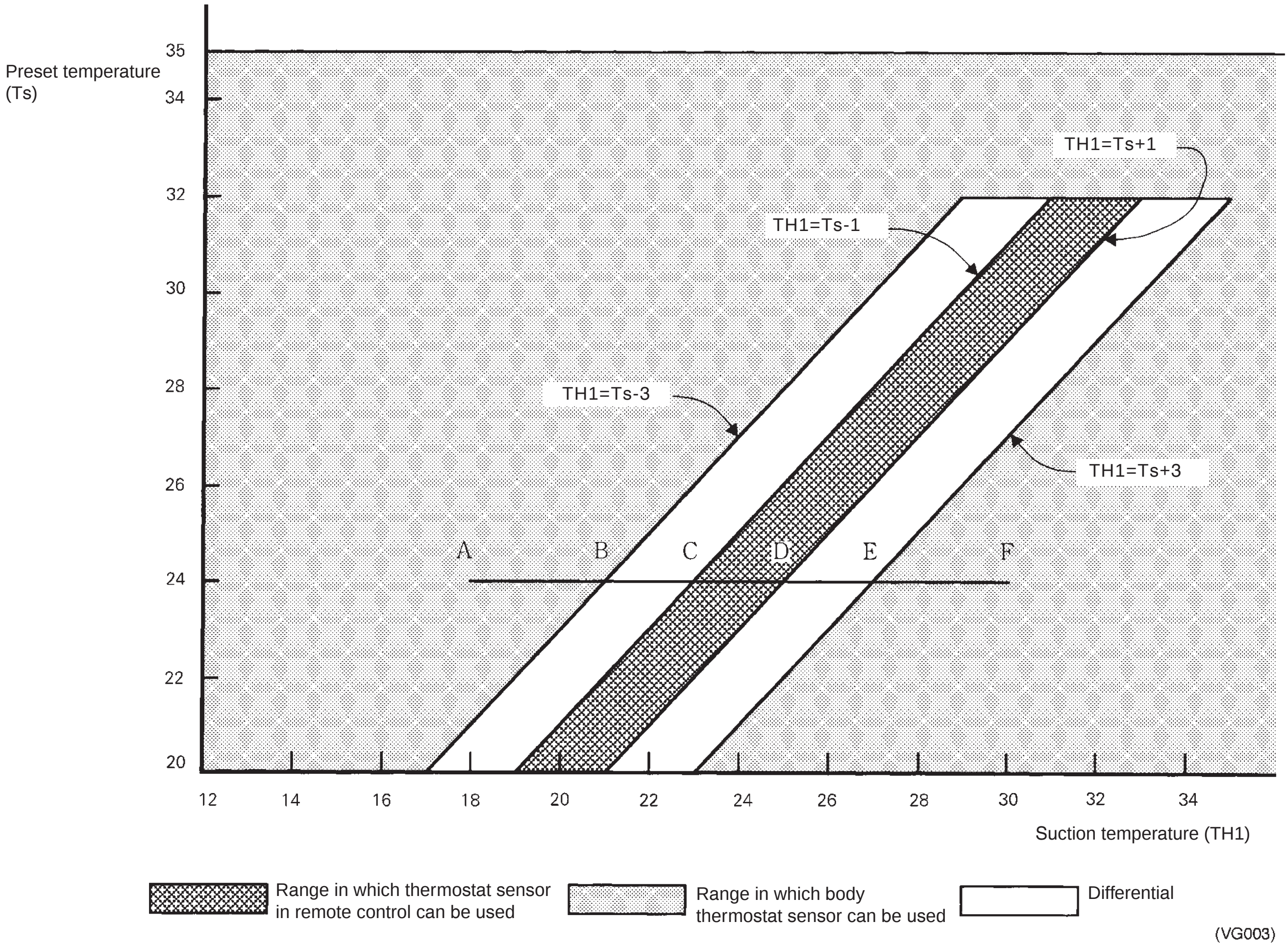
The factory set position is standard position. (VL012)

# 6.3 Thermostat Sensor in Remote Control

Temperature is controlled by both the thermostat sensor in Remote Control and air suction thermostat in the indoor unit. (This is however limited to when the field setting for the thermostat sensor in Remote Control is set to “Use.” )

## Cooling

If there is a significant difference in the preset temperature and the suction temperature, fine adjustment control is carried out using a body thermostat sensor, or using the sensor in the Remote Control near the position of the user when the suction temperature is near the preset temperature.




■ **Ex: When cooling**

**Assuming the preset temperature in the figure above is 24°C, and the suction temperature has changed from 18°C to 30°C (A → F):**

(This example also assumes there are several other air conditioners, the VRV system is off, and that temperature changes even when the thermostat sensor is off.)

Body thermostat sensor is used for temperatures from 18°C to 23°C (A → C).

Remote Control thermostat sensor is used for temperatures from 23°C to 27°C (C → E).

Body thermostat sensor is used for temperatures from 27°C to 30°C (E → F).

**And, assuming suction temperature has changed from 30°C to 18°C (F → A):**

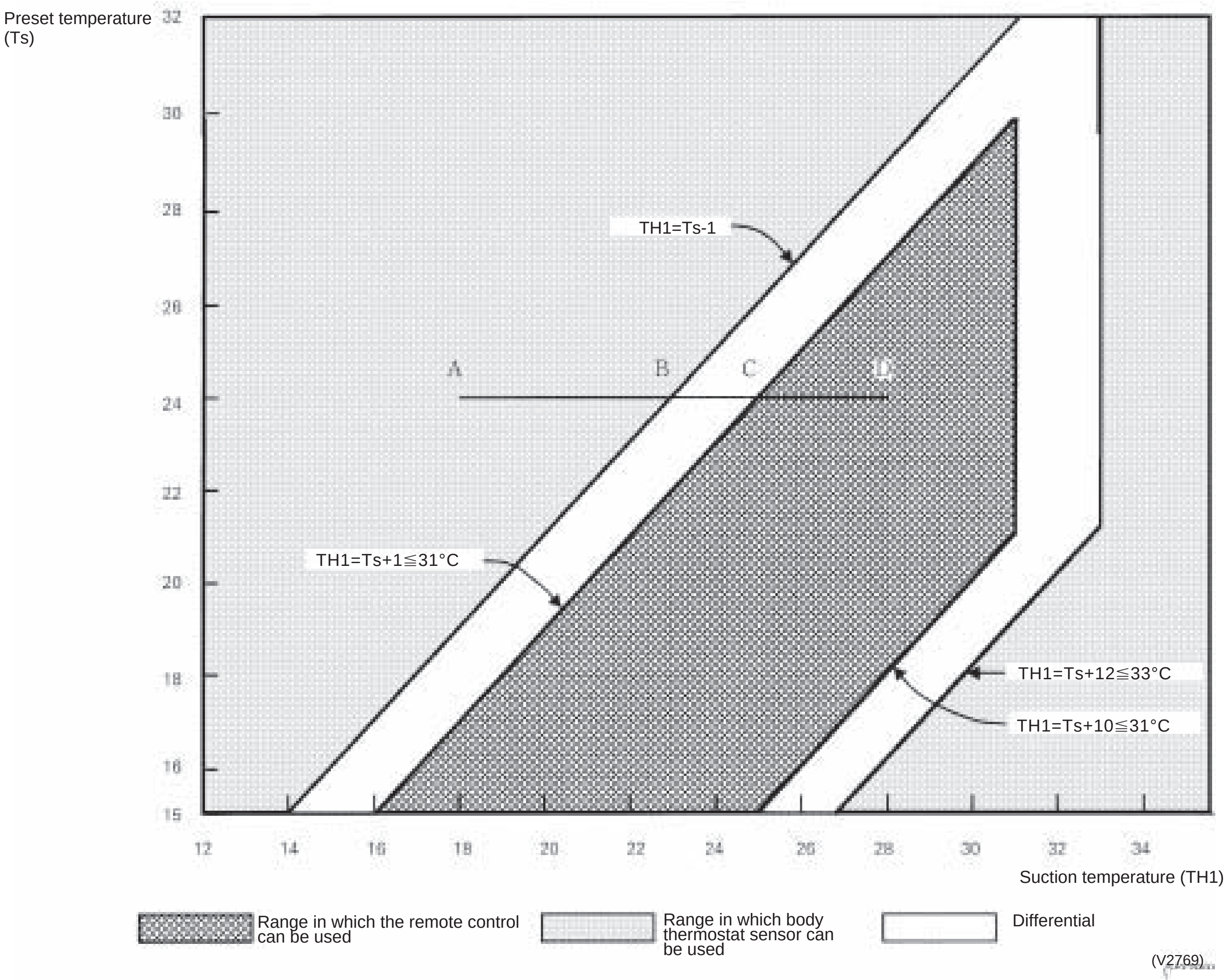
Body thermostat sensor is used for temperatures from 30°C to 25°C (F → D).

Remote Control thermostat sensor is used for temperatures from 25°C to 21°C (D → B).

Body thermostat sensor is used for temperatures from 21°C to 18°C (B → A).

## Heating

When heating, the hot air rises to the top of the room, resulting in the temperature being lower near the floor where the occupants are. When controlling by body thermostat sensor only, the unit may therefore be turned off by the thermostat before the lower part of the room reaches the preset temperature. The temperature can be controlled so the lower part of the room where the occupants are doesn't become cold by widening the range in which thermostat sensor in Remote Control can be used so that suction temperature is higher than the preset temperature.




■ **Ex: When heating**
**Assuming the preset temperature in the figure above is 24°C, and the suction temperature has changed from 18°C to 28°C (A → F):**
(This example also assumes there are several other air conditioners, the VRV system is off, and that temperature changes even when the thermostat sensor is off.)
Body thermostat sensor is used for temperatures from 18°C to 25°C (A →C).
Remote Control thermostat sensor is used for temperatures from 25°C to 28°C (C → E).

**And, assuming suction temperature has changed from 28°C to 18°C (D → A):**
Remote Control thermostat sensor is used for temperatures from 28°C to 23°C (D → B).
Body thermostat sensor is used for temperatures from 23°C to 18°C (B →A).

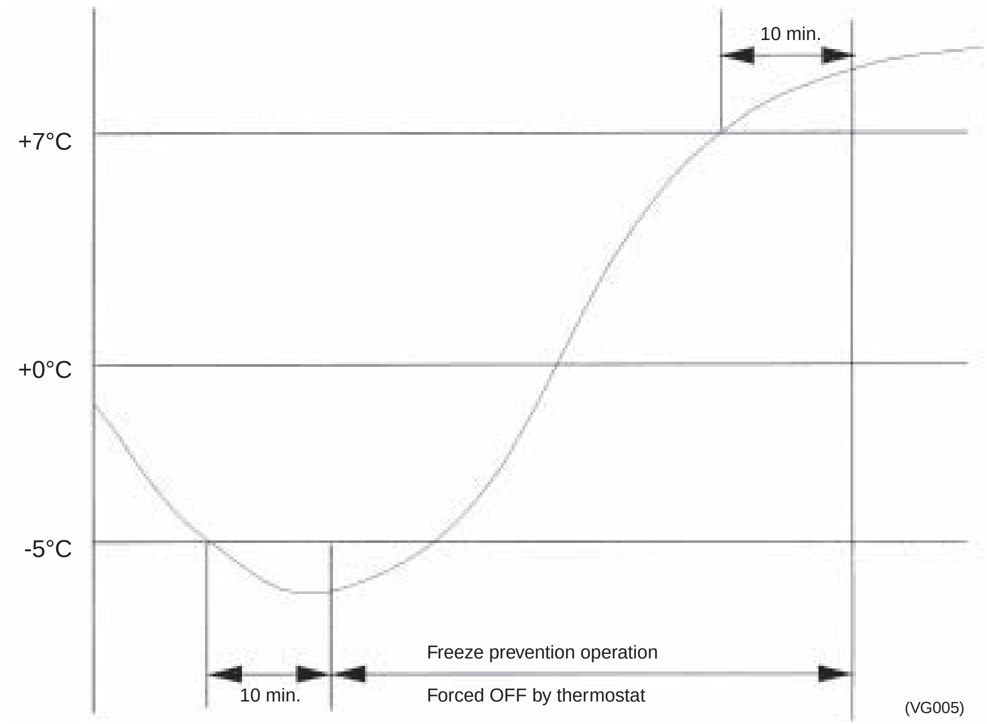
# 6.4 Freeze Prevention

**Freeze Prevention by Off Cycle (Indoor Unit)**

When the temperature detected by liquid pipe temperature thermistor (R2T) of the indoor unit heat exchanger drops too low, the unit enters freeze prevention operation in accordance with the following conditions, and is also set in accordance with the conditions given below.

Conditions for starting freeze prevention: Temperature is -1°C or less for total of 40 min., or temperature is -5°C or less for total of 10 min.
Conditions for stopping freeze prevention: Temperature is +7°C or more for 10 min. continuously

Ex: Case where temperature is -5°C or less for total of 10 min.



# Part 5
# Test Operation

# 1. Test Operation

# 1.1 Procedure and Outline

Follow the following procedure to conduct the initial test operation after installation.

## 1.1.1 Check work prior to turn power supply on

**Check the below items.**
- Power wiring
- Control transmission wiring between units
- Earth wire

○ Is the wiring performed as specified?
○ Are the designated wires used?
○ Is the grounding work completed?
Use a 500V megger tester to measure the insulation.
- Do not use a megger tester for other circuits than 200V (or 240v) circuit.

○ Are the setscrews of wiring not loose?

⇩

**Check on refrigerant piping**

○ Is pipe size proper? (The design pressure of this product is 3.8MPa.)
○ Are pipe insulation materials installed securely?
Liquid and gas pipes need to be insulated. (Otherwise causes water leak.)
○ Are respective stop valves on liquid, gas and oil equalizing lines securely open?

⇩

**Check on amount of refrigerant charge**

○ Is refrigerant charged up to the specified amount?
If insufficient, charge the refrigerant from the service port of stop valve on the liquid side with outdoor unit in stop mode after turning power on.
○ Has the amount of refrigerant charge been recorded on "Record Chart of Additional Refrigerant Charge Amount"?

(V3055)

## 1.1.2 Turn power on

**Turn outdoor unit power on.**

○ Be sure to turn the power on 6 hours before starting operation to protect compressors. (to power on clankcase heater)

⇩

**Carry out field setting on outdoor PC board.**

○ For field settings, refer to "Field Settings" on and after P95.
After the completion of field settings, set to "Setting mode1"

⇩

**Turn outdoor unit power on.**

(V3056)

## 1.1.3 Check Operation

* During check operation, mount front panel to avoid the misjudging.
* Check operation is mandatory for normal unit operation.

(When the check operation is not executed, alarm code "U3" will be displayed.)

Press and hold the TEST OPERATION button (BS4) on outdoor unit PC board for 5 seconds.

↓

Check on operation

○ The test operation is started automatically.
The following judgements are conducted within 15 minutes.
- "Check for wrong wiring"
- "Check refrigerant for over charge"
- "Check stop valve for not open"
- Pipe length automatic judgement"

The following indications are conducted while in test operation.
- LED lamp on outdoor unit PC board — H2P flickers (test operation)
- Remote control — Indicates "On Centralized Control" on upper right.
  — Indicates "Test Operation" on lower left

(V3057)

On completion of test operation, LED on outdoor unit PC board displays the following.
H3P ON: Normal completion
H2P and H3P ON: Abnormal completion →Check the indoor unit Remote Control for abnormal display and correct it.

In the case of multi-outdoor-unit system, make setting on the master unit PC board. (Setting with the slave unit is disabled.)
[LED display in the case of multi-outdoor-unit system] (Same as that in emergency operation)

* Discriminate the operating status of the master unit/slave units through the following LED display.

LED display (○:ON ●:OFF ◑:Blink)
H1P — — — H7P H8P

Master: ●●○●●●● ○
Slave 1: ●●●●●●● ◑
Slave 2: ●●●●●●● ●
(Factory set)

Malfunction code
In case of an alarm code displayed on Remote Control:

| Cause of trouble due to faulty installation work | Alarm code | Countermeasure |
|---|---|---|
| Closed stop valve of outdoor unit | E3<br>E4<br>F3<br>UF | In case of RXYQ5 to 16M (Single outdoor installation)<br>Liquid side stop valve : Open<br>Gas side stop valve : Open<br>Oil equalizing pipe stop valve : Close<br>In case of RXYQ18 to 48M (Multi outdoor installation)<br>Liquid side stop valve : Open<br>Gas side stop valve : Open<br>Oil equalizing pipe stop valve : Open |
| Reversed phase in power cable connection for outdoor unit | U1 | Change connection of two wires among three for correct phasing. |
| Electric power for outdoor or indoor unit is not supplied. (Including open phase) | U4 | Check that the power cable for outdoor unit is connected properly. |
| Incorrect wiring between units | UF | Check that the wiring between units corresponds correctly to refrigerant piping system. |
| Refrigerant overcharge | E3<br>F6<br>UF | Compute again optimum amount of refrigerant to be added based on the piping length, then, collect the excessive amount by using refrigerant collector to make the refrigerant amount proper. |
| Insufficient refrigerant | E4<br>F3 | - Check that additional charging has been carried out.<br>- Compute again the refrigerant amount to be added based on the piping length, and charge proper amount of refrigerant additionally. |

## 1.1.4 Confirmation on normal operation

- Conduct normal unit operation after the check operation has been completed.
  (When outdoor air temperature is 24ºC or higher, the unit can not be operated with heating mode. See the instruction manual attached.)
  Confirm that the indoor/outdoor units can be operated normally.
  (When an abnormal noise due to liquid compression by the compressor can be heard, stop the unit immediately, and turn on the crankcase heater to heat up it sufficiently, then start operation again.)
- Operate indoor unit one by one to check that the corresponding outdoor unit operates.
- Confirm that the indoor unit discharges cold air (or warm air).
- Operate the air direction control button and flow rate control button to check the function of the devices.

# 1.2 Operation When Power is Turned On

## 1.2.1 When Turning On Power First Time

The unit cannot be run for up to 12 minutes to automatically set the master power and address (indoor-outdoor address, etc.).

**Status**

| | |
|---|---|
| Outdoor unit | Test lamp H2P .... Blinks<br>Can also be set during operation described above. |
| Indoor unit | If ON button is pushed during operation described above, the “UH” malfunction indicator blinks.<br>(Returns to normal when automatic setting is complete.) |

## 1.2.2 When Turning On Power The Second Time and Subsequent

Tap the RESET button on the outdoor unit PC board. Operation becomes possible for about 2 minutes. If you do not push the RESET button, the unit cannot be run for up to 10 minutes to automatically set master power.

**Status**

| | |
|---|---|
| Outdoor unit | Test lamp H2P .... Blinks<br>Can also be set during operation described above. |
| Indoor unit | If ON button is pushed during operation described above, the operation lamp lights but the compressor does not operate. (Returns to normal when automatic setting is complete.) |

## 1.2.3 When an Indoor Unit or Outdoor unit Has Been Added, or Indoor or Outdoor Unit PC Board Has Been Changed

Be sure to push and hold the RESET button for 5 seconds. If not, the addition cannot be recognized. In this case, the unit cannot be run for up to 12 minutes to automatically set the address (indoor-outdoor address, etc.)

**Status**

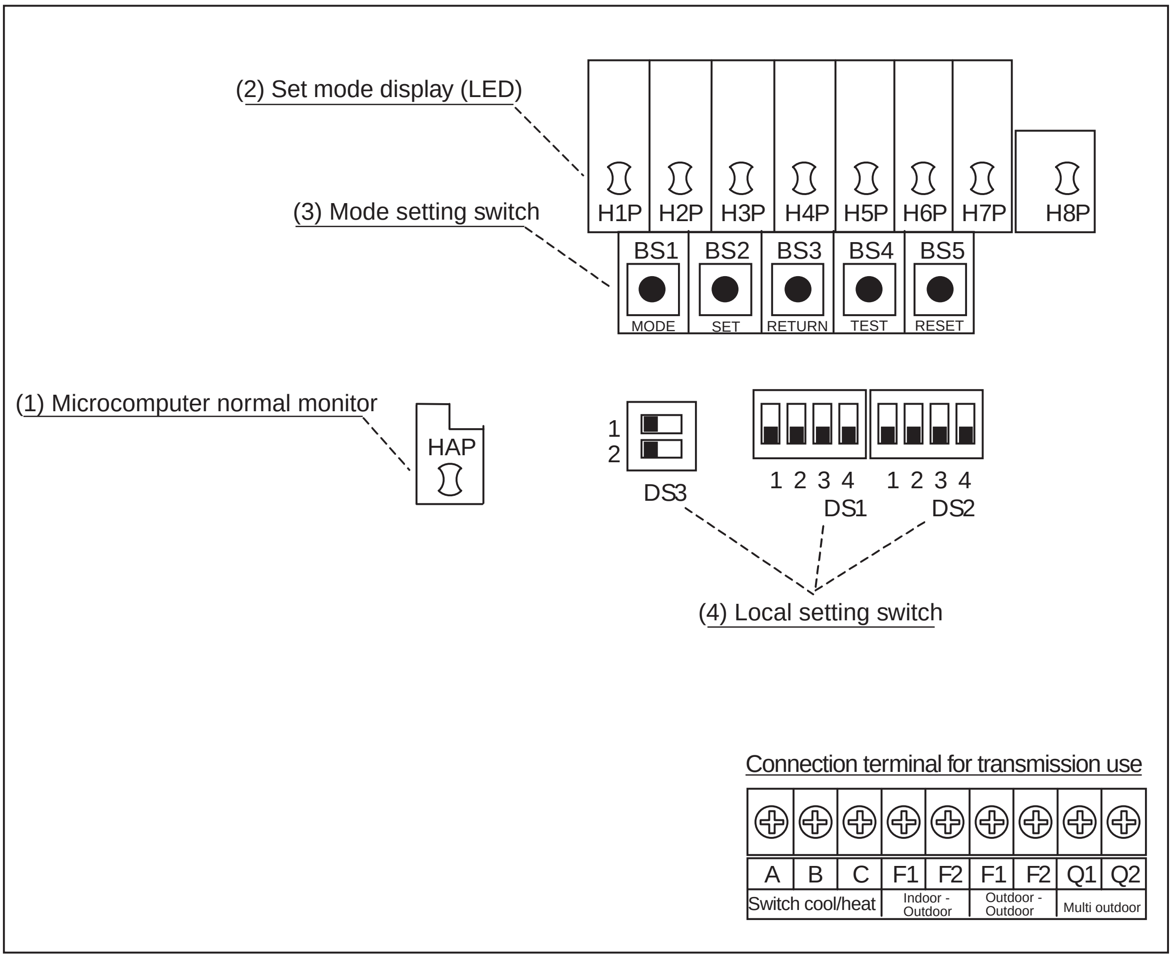
| | |
|---|---|
| Outdoor unit | Test lamp H2P .... ON<br>Can also be set during operation described above. |
| Indoor unit | If ON button is pushed during operation described above, the “UH” or “U4” malfunction indicator blinks. (Returns to normal when automatic setting is complete.) |

⚠ **Caution** **When the 400 volt power supply is applyed to "N" phase by mistake, replace Inverter P.C.B (A2P) and control transformer (T1R, T2R) in switch box together.**

(V0847)

# 2. Outdoor Unit PC Board Layout

**Outdoor unit PC board**




(V3054)

(1) Microcomputer normal monitor
This monitor blinks while in normal operation, and turns on or off when a malfunction occurs.

(2) Set mode display (LED)
LEDs display mode according to the setting.

(3) Mode setting switch
Used to change mode.

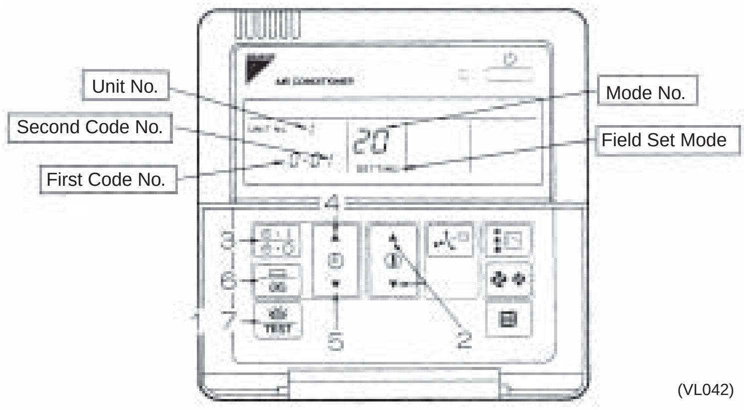
(4) Local setting switch
Used to make local settings.

# 3. Field Setting

## 3.1 Field Setting from Remote Control

Individual function of indoor unit can be changed from the Remote Control. At the time of installation or after service inspection / repair, make the local setting in accordance with the following description.
Wrong setting may cause malfunction.
(When optional accessory is mounted on the indoor unit, setting for the indoor unit may be required to change. Refer to information in the option handbook.)

### 3.1.1 Wired Remote Control <BRC1A61, 62>

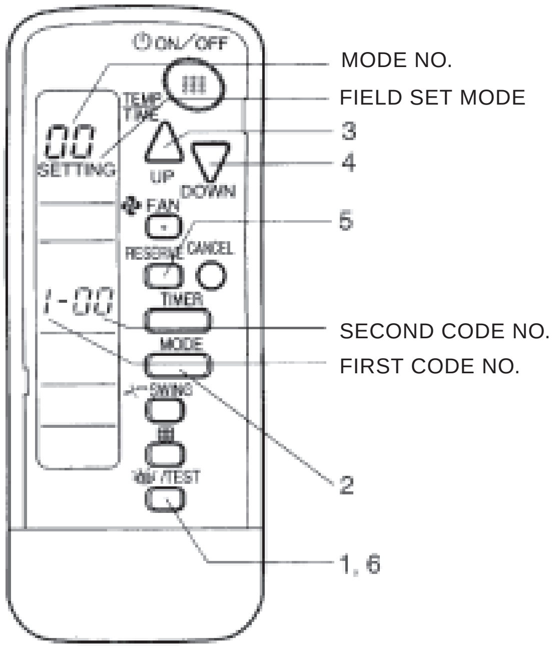



1. When in the normal mode, push the [TEST] button for 4 seconds or more, and operation then enters the "field set mode."
2. Select the desired "mode No." with the button.
3. During group control and you want to set by each individual indoor unit (when mode No. 20, 21, 22, 23, 25 has been selected), push the time mode button and select the "indoor unit No." to be set.
   Note: This operation is not required when setting as a group.
4. Push the button and select the first code No.
5. Push the button and select the second code No.
6. Push the timer button one time and "define" the currently set contents.
7. Push the [TEST] button to return to the normal mode.

(Example)
When setting the filter sign time to "Filter Dirtiness-High" in all group unit setting, set the Mode No. to "10", Mode setting No. to "0" and setting position No. to "02".

## 3.1.2 infrared Remote Control - Indoor Unit

**BRC7C type**



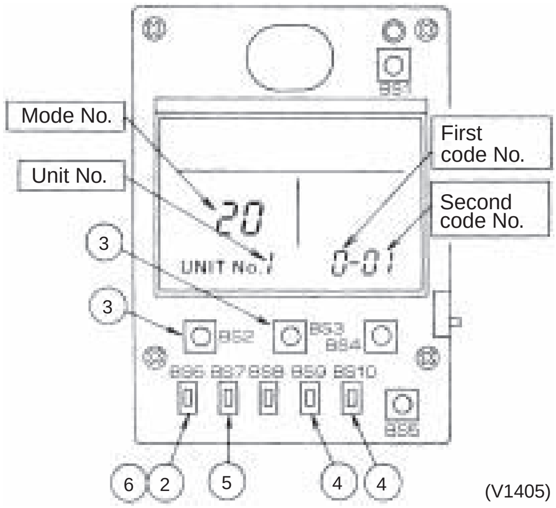

(V2770)

1. When in the normal mode, push the button for 4 seconds or more, and operation then enters the “field set mode.”
2. Select the desired “mode No.” with the button.
3. Pushing the button, select the first code No.
4. Pushing the button, select the second code No.
5. Push the timer button and check the settings.
6. Push the button to return to the normal mode.

(Example)
When setting the filter sign time to “Filter Dirtiness-High” in all group unit setting, set the Mode No. to “10”, Mode setting No. to “0” and setting position No. to “02”.

### 3.1.3 Simplified Remote Control

**BRC2A51**




(V1405)

- Group No. setting by simplified Remote Control.

1. Remove the cover of Remote Control.
2. While in normal mode, press the [BS6] BUTTON (field set) to enter the FIELD SET MODE.
3. Select the mode No. [00] with [BS2] BUTTON (temperature setting ▲) and [BS3] BUTTON (temperature setting ▼).
4. Select the group No. with [BS9] BUTTON (set A) and [BS10] BUTTON (set B). (Group Nos. increase in the order of 1-00, 1-01......1-15, 2-00,.....4-15. However, the unified ON/OFF control displays only group No. set within the range of control.)
5. Press [BS7] BUTTON (set/cancel) to set group No.
6. Press [BS6] BUTTON (field set) to return to the NORMAL MODE.

## 3.1.4 Setting Contents and Code No. – VRV Unit

| VRV system indoor unit settings | Mode No. Note 2 | Setting Switch No. | Setting Contents | | Second Code No.(Note 3) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 01 | | 02 | | 03 | | 04 | |
| | 10(20) | 0 | Filter contamination heavy/ light (Setting for display time to clean air filter) (Sets display time to clean air filter to half when there is heavy filter contamination.) | Super long life filter | Light | Approx. 10,000 hrs. | Heavy | Approx. 5,000 hrs. | — | | — | |
| | | | | Long life filter | | Approx. 2,500 hrs. | | Approx. 1,250 hrs. | | | | |
| | | | | Standard filter | | Approx. 200 hrs. | | Approx. 100 hrs. | | | | |
| | | 1 | Long life filter type | | Long life filter | | Super long life filter | | — | | — | |
| | | 2 | Thermostat sensor in Remote Control | | Use | | No use | | — | | | |
| | | 3 | Display time to clean air filter calculation (Set when filter sign is not to be displayed.) | | Display | | No display | | — | | | |
| | 12(22) | 0 | Optional accessories output selection (field selection of output for adapter for wiring) | | Indoor unit turned ON by thermostat | | | | Operation output | | Malfunction output | |
| | | 1 | ON/OFF input from outside (Set when ON/OFF is to be controlled from outside.) | | Forced OFF | | ON/OFF control | | — | | — | |
| | | 2 | Thermostat differential changeover (Set when remote sensor is to be used.) | | 1°C | | 0.5°C | | — | | — | |
| | | 3 | OFF by thermostat fan speed | | LL | | Set fan speed | | — | | — | |
| | | 4 | Automatic mode differential (automatic temperature differential setting for VRV system heat recovery series cool/heat) | | 01:0 | 02:1 | 03:2 | 04:3 | 05:4 | 06:5 | 07:6 | 08:7 |
| | | 5 | Power failure automatic reset | | Not equipped | | Equipped | | — | | — | |
| | 13(23) | 0 | High air outlet velocity (Set when installed in place with ceiling higher than 2.7 m.) | | N | | H | | S | | — | |
| | | 1 | Selection of air flow direction (Set when a blocking pad kit has been installed.) | | F (4 directions) | | T (3 directions) | | W (2 directions) | | — | |
| | | 3 | Air flow direction adjustment (Set at installation of decoration panel.) | | Equipped | | Not equipped | | | | — | |
| | | 4 | Field set air flow position setting | | Draft prevention | | Standard | | Ceiling Soiling prevention | | — | |
| | | 5 | Field set fan speed selection (fan speed control by air discharge outlet for phase control) | | Standard | | Optional accessory 1 | | Optional accessory 2 | | — | |
| | 15(25) | 1 | Thermostat OFF excess humidity | | Not equipped | | Equipped | | — | | — | |
| | | 2 | Direct duct connection (when the indoor unit and heat reclaim ventilation unit are connected by duct directly.) ∗Note 6 | | Not equipped | | Equipped | | — | | — | |
| | | 3 | Drain pump humidifier interlock selection | | Not equipped | | Equipped | | — | | — | |
| | | 5 | Field set selection for individual ventilation setting by Remote Control | | Not equipped | | Equipped | | — | | — | |
| | | 6 | Field set selection for individual ventilation setting by Remote Control | | Not equipped | | Equipped | | — | | — | |

**Notes:**
1. Settings are made simultaneously for the entire group, however, if you select the mode No. inside parentheses, you can also set by each individual unit. Setting changes however cannot be checked except in the individual mode for those in parentheses.
2. The mode numbers inside parentheses cannot be used by infrared Remote Controls, so they cannot be set individually. Setting changes also cannot be checked.
3. Marked ▭ are factory set.
4. Do not make settings other than those described above. Nothing is displayed for functions the indoor unit is not equipped with.
5. "88" may be displayed to indicate the Remote Control is resetting when returning to the normal mode.
6. If the setting mode to "Equipped", heat reclaim ventilation fan conducts the fan residual operation by linking to indoor unit.

### 3.1.5 Applicable range of Field setting

| | Ceiling mounted cassette type | | | Ceiling mounted built-in type | Ceiling mounted duct type | Ceiling suspended type | Wall mounted type | Floor standing type | Concealed Floor standing type |
|---|---|---|---|---|---|---|---|---|---|
| | Multi flow | Double flow | Corner type | | | | | | |
| | FXFQ | FXCQ | FXKQ | FXSQ | FXMQ | FXHQ | FXAQ | FXLQ | FXNQ |
| Filter sign | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Ultra long life filter sign | ○ | ○ | — | — | — | — | — | — | — |
| Remote Control thermostat sensor | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Set fan speed when thermostat OFF | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Air flow adjustment Ceiling height | ○ | — | — | — | — | ○ | — | — | — |
| Air flow direction | ○ | — | — | — | — | — | — | — | — |
| Air flow direction adjustment (Down flow operation) | — | — | ○ | — | — | — | — | — | — |
| Air flow direction adjustment range | ○ | ○ | ○ | — | — | — | — | — | — |
| Field set fan speed selection | ○ | — | — | — | — | ○ | — | — | — |

### 3.1.6 Detailed Explanation of Setting Modes

# Filter Sign Setting

If switching the filter sign ON time, set as given in the table below.

**Set Time**

| Filter Specs. / Setting | Standard | Long Life | Ultra Long Life Filter |
|---|---|---|---|
| Contamination Light | 200 hrs. | 2,500 hrs. | 10,000 hrs. |
| Contamination Heavy | 100 hrs. | 1,250 hrs. | 5,000 hrs. |

**Ultra-Long-Life Filter Sign Setting**

When a Ultra-long-life filter is installed, the filter sign timer setting must be changed.

**Setting Table**

| Mode No. | Setting Switch No. | Setting Position No. | Setting |
|---|---|---|---|
| 10 (20) | 1 | 01 | Long-Life Filter |
| | | 02 | Ultra-Long-Life Filter (1) |
| | | 03 | — |

**Fan Speed Changeover When Thermostat is OFF**

By setting to “Set Fan Speed,” you can switch the fan speed to the set fan speed when the heating thermostat is OFF.

***** Since there is concern about draft if using “fan speed up when thermostat is OFF,” you should take the setup location into consideration.

**Setting Table**

| Mode No. | First Code No. | Second Code No. | Setting |
|---|---|---|---|
| 12(22) | 3 | 01 | LL Fan Speed |
| | | 02 | Set Fan Speed |

# Auto restart after power failure reset

For the air conditioners with no setting for the function (same as factory setting), the units will be left in the stop condition when the power supply is reset automatically after power failure reset or the main power supply is turned on again after once turned off. However, for the air conditioners with the setting, the units may start automatically after power failure reset or the main power supply turned on again ( return to the same operation condition as that of before power failure).

For the above reasons, when the unit is set enabling to utilize “Auto restart function after power failure reset”, utmost care should be paid for the occurrence of the following situation.

**Caution**

1. **The air conditioner starts operation suddenly after power failure reset or the main power supply turned on again. Consequently, the user might be surprised (with question for the reason why).**
2. **In the service work, for example, turning off the main power switch during the unit is in operation, and turning on the switch again after the work is completed start the unit operation (the fan rotates).**

## Air Flow Adjustment - Ceiling height

Make the following setting according to the ceiling height. The setting position No. is set to “01” at the factory.

■ **In the Case of FXAQ, FXHQ**

| Mode No. | Setting Switch No. | Setting Position No. | Setting |
|---|---|---|---|
| 13(23) | 0 | 01 | Wall-mounted type: Standard |
| | | 02 | Wall-mounted type: Slight increase |
| | | 03 | Wall-mounted type: Normal increase |

■ **In the Case of FXFQ25~80**

| Mode No. | First code No. | Second code No. | Setting | Ceiling height | | |
|---|---|---|---|---|---|---|
| | | | | 4-way Outlets | 3-way Outlets | 2-way Outlets |
| 13 (23) | 0 | 01 | Standard (N) | Lower than 2.7 m | Lower than 3.0 m | Lower than 3.5 m |
| | | 02 | High Ceiling (H) | Lower than 3.0 m | Lower than 3.3 m | Lower than 3.8 m |
| | | 03 | Higher Ceiling (S) | Lower than 3.5 m | Lower than 3.5 m | — |

■ **In the Case of FXFQ100~125**

| Mode No. | First code No. | Second code No. | Setting | Ceiling height | | |
|---|---|---|---|---|---|---|
| | | | | 4-way Outlets | 3-way Outlets | 2-way Outlets |
| 13 (23) | 0 | 01 | Standard (N) | Lower than 3.2 m | Lower than 3.6 m | Lower than 4.2 m |
| | | 02 | High Ceiling (H) | Lower than 3.6 m | Lower than 4.0 m | Lower than 4.2 m |
| | | 03 | Higher Ceiling (S) | Lower than 4.2 m | Lower than 4.2 m | — |

## Air Flow Direction Setting

Set the air flow direction of indoor units as given in the table below. (Set when optional air outlet blocking pad has been installed.) The second code No. is factory set to “01.”

**Setting Table**

| Mode No. | First Code No. | Second Code No. | Setting |
|---|---|---|---|
| 13 (23) | 1 | 01 | F : 4-direction air flow |
| | | 02 | T : 3-direction air flow |
| | | 03 | W : 2-direction air flow |

## Setting of Air Flow Direction Adjustment

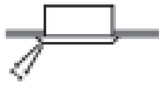
Only the model FXKQ has the function.
When only the front-flow is used, sets yes/no of the swing flap operation of down-flow.

**Setting Table**

| Setting | Mode No. | First Code No. | Second Code No. |
|---|---|---|---|
| Down-flow operation: Yes | 13 (23) | 3 | 01 |
| Down-flow operation: No | | | 02 |

## Setting of Air Flow Direction Adjustment Range

Make the following air flow direction setting according to the respective purpose.



(S2537)

### Setting Table

| Mode No. | First Code No. | Second Code No. | Setting |
|---|---|---|---|
| 13 (23) | 4 | 01 | Upward (Draft prevention) |
| | | 02 | Standard |
| | | 03 | Downward (Ceiling soiling prevention) |

## Air flow rate switching at discharge grille for field air flow rate switching

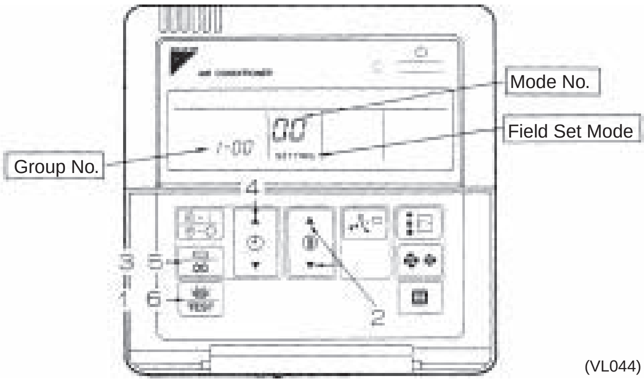
When the optional parts (high performance filter, etc.) is installed, sets to change fan speed for securing air flow rate.
Follow the instruction manual for the optional parts to enter the setting numbers.

# 3.1.7 Centralized Control Group No. Setting

**BRC1A Type**

- If carrying out centralized control by central Remote Control or unified ON/OFF controller, group No. must be set for each group individually by Remote Control.
- Group No. setting by Remote Control for centralized control

1. When in the normal mode, push the button for 4 seconds or more, and operation then enters the “field setting mode.”
2. Set mode No. “00” with the button. *
3. Push the button to inspect the group No. display.
4. Set the group No. for each group with the button (The group No. increases in the manner of 1-00, 1-01, ...,1-15, 2-00,...4-15. However, the unified ON/OFF controller displays only the group No. within the range selected by the switch for setting each address.)
5. Push the timer button to define the selected group No.
6. Push the button to return to the normal mode.




(VL044)

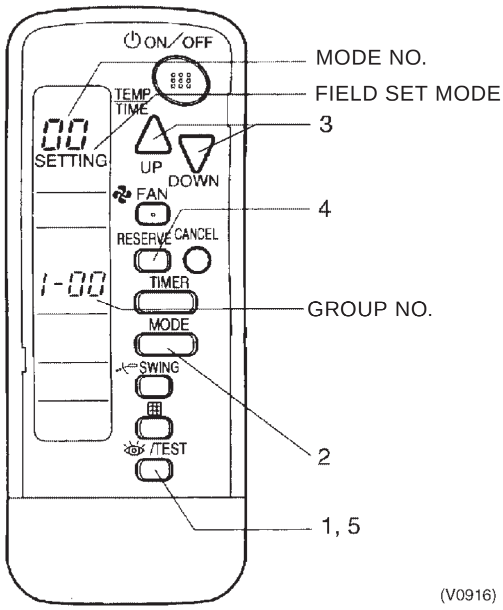
- Even if not using a Remote Control, connect the Remote Control when setting the group No., set the group No. for centralized control, and disconnect after making the setting.
- Set the group No. after turning on the power supply for the central Remote Control, unified ON/OFF controller, and indoor unit.

**BRC7C Type**

- Group No. setting by infrared Remote Control for centralized control

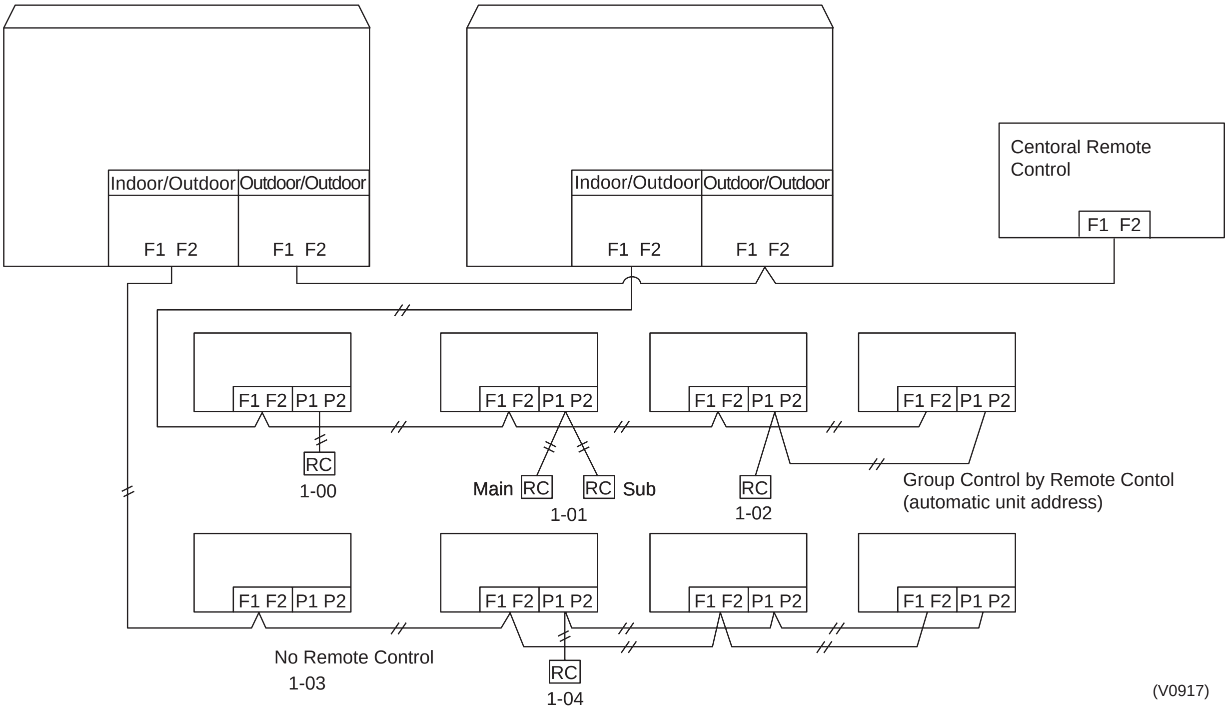
1. When in the normal mode, push button for 4 seconds or more, and operation then enters the “field set mode.”
2. Set mode No. “00” with button.
3. Set the group No. for each group with button (advance/backward).
4. Enter the selected group numbers by pushing button.
5. Push button and return to the normal mode.

**BRC7C Type**




(V0916)

## Group No. Setting Example




**Caution** When turning the power supply on, the unit may often not accept any operation while "88" is displaying after all indications were displayed once for about 1 minute on the liquid crystal display. This is not an operative fault.

## 3.1.8 Setting of Operation Control Mode from Remote Control (Local Setting)

The operation control mode is compatible with a variety of controls and operations by limiting the functions of the operation Remote Control. Furthermore, operations such as Remote Control ON/OFF can be limited in accordance with the combination conditions. (Refer to information in the table below.)
Centralized controller is normally available for operations. (Except when centralized monitor is connected)

## 3.1.9 Contents of Control Modes

Twenty modes consisting of combinations of the following five operation modes with temperature and operation mode setting by Remote Control can be set and displayed by operation modes 0 through 19.

- ◆ ON/OFF control impossible by Remote Control
  Used when you want to turn on/off by central Remote Control only.
  (Cannot be turned on/off by Remote Control.)
- ◆ OFF control only possible by Remote Control
  Used when you want to turn on by central Remote Control only, and off by Remote Control only.
- ◆ Centralized
  Used when you want to turn on by central Remote Control only, and turn on/off freely by Remote Control during set time.
- ◆ Individual
  Used when you want to turn on/off by both central Remote Control and Remote Control.
- ◆ Timer operation possible by Remote Control
  Used when you want to turn on/off by Remote Control during set time and you do not want to start operation by central Remote Control when time of system start is programmed.

## How to Select Operation Mode

Whether operation by Remote Control will be possible or not for turning on/off, controlling temperature or setting operation mode is selected and decided by the operation mode given on the right edge of the table below.

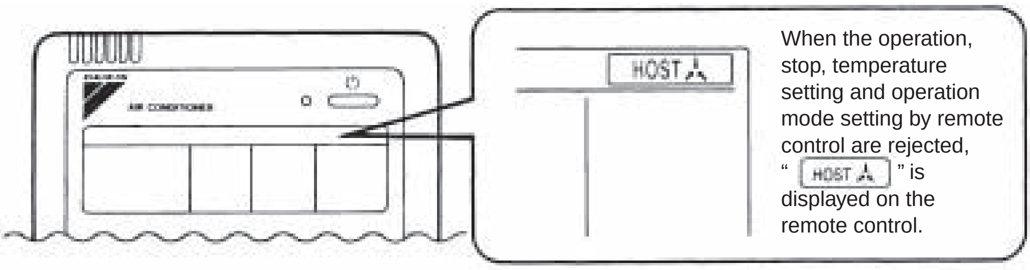
**Example**

| ON by remote control (Unified ON by central remote controller) | OFF by remote control (Unified OFF by central remote control) | OFF by remote control | Temperature control by remote control | Operation mode setting by remote control | ⇨ Control mode is "1." |
|---|---|---|---|---|---|
| ↓ Rejection | ↓ Rejection | ↓ Rejection | ↓ Acceptance | ↓ Acceptance | |

(VL069)

| Control mode | Control by Remote Control | | | | | Control mode |
|---|---|---|---|---|---|---|
| | Operation | | OFF | Temperature control | Operation mode setting | |
| | Unified operation, individual operation by central Remote Control, or operation controlled by timer | Unified OFF, individual stop by central Remote Control, or timer stop | | | | |
| ON/OFF control impossible by Remote Control | Rejection (Example) | Rejection (Example) | Rejection (Example) | Rejection | Acceptance | 0 |
| | | | | | Rejection | 10 |
| | | | | Acceptance (Example) | Acceptance (Example) | 1(Example) |
| | | | | | Rejection | 11 |
| OFF control only possible by Remote Control | | | Acceptance | Rejection | Acceptance | 2 |
| | | | | | Rejection | 12 |
| | | | | Acceptance | Acceptance | 3 |
| | | | | | Rejection | 13 |
| Centralized | Acceptance | | | Rejection | Acceptance | 4 |
| | | | | | Rejection | 14 |
| | | | | Acceptance | Acceptance | 5 |
| | | | | | Rejection | 15 |
| Individual | | Acceptance | | Rejection | Acceptance | 6 |
| | | | | | Rejection | 16 |
| | | | | Acceptance | Acceptance | 7 *1 |
| | | | | | Rejection | 17 |
| Timer operation possible by Remote Control | Acceptance (During timer at ON position only) | Acceptance (During timer at ON position only) | | Rejection | Acceptance | 8 |
| | | | | | Rejection | 18 |
| | | | | Acceptance | Acceptance | 9 |
| | | | | | Rejection | 19 |

Do not select “timer operation possible by Remote Control” if not using a Remote Control. Operation by timer is impossible in this case.
*1. Factory setting




(VL070)

# 3.2 Field Setting from Outdoor Unit

## 3.2.1 Field Setting from Outdoor Unit

### ■ Setting by dip switches

The following field settings are made by dip switches on PC board.

<table>
<tr><th colspan="2">Dipswitch</th><th rowspan="2">Setting item</th><th rowspan="2">Description</th></tr>
<tr><th>No.</th><th>Setting</th></tr>
<tr><td rowspan="2">DS1-1</td><td>ON</td><td rowspan="2">Cool / Heat select</td><td rowspan="2">Used to set cool / heat select by Remote Control equipped with outdoor unit.</td></tr>
<tr><td>OFF (Factory set)</td></tr>
<tr><td rowspan="2">DS1-2 ~DS1-4</td><td>ON</td><td rowspan="2">Not used</td><td rowspan="2">Do not change the factory settings.</td></tr>
<tr><td>OFF (Factory set)</td></tr>
<tr><td rowspan="2">DS2-1 ~4</td><td>ON</td><td rowspan="2">Not used</td><td rowspan="2">Do not change the factory settings.</td></tr>
<tr><td>OFF (Factory set)</td></tr>
<tr><td rowspan="2">DS3-1, 2</td><td>ON</td><td rowspan="2">Not used</td><td rowspan="2">Do not change the factory settings.</td></tr>
<tr><td>OFF (Factory set)</td></tr>
</table>

**Caution** **DIP switch Setting after changing the main P.C.Board(A1P) to spare parts P.C.B.**

When you change the main P.C.Board(A1P) to spare parts P.C.B., please carry out the following setting.




**DIP Switch Detail**

<table>
<tr><th>DS No.</th><th>Item</th><th colspan="2">Contents</th></tr>
<tr><td rowspan="2">DS1-1</td><td rowspan="2">Cool/Heat change over setting</td><td>ON</td><td>The Cool/Heat change over setting is carried out by COOL/ HEAT changeover Remote Control fitted to outdoor unit.</td></tr>
<tr><td>OFF</td><td>The Cool/Heat change over setting is not carried out by COOL/ HEAT changeover Remote Control fitted to outdoor unit.</td></tr>
<tr><td rowspan="2">DS1-2</td><td rowspan="2">Domestic/Overseas setting</td><td>ON</td><td>Domestic Japan</td></tr>
<tr><td>OFF</td><td>Overseas</td></tr>
<tr><td rowspan="2">DS1-3</td><td rowspan="2">Cooling only/Heat-pump setting</td><td>ON</td><td>Cooling only</td></tr>
<tr><td>OFF</td><td>Heat-pump</td></tr>
<tr><td>DS1-4</td><td rowspan="2">Refrigerant classification</td><td colspan="2" rowspan="2"><table><tr><th></th><th>R22</th><th>Not used</th><th>R410A</th></tr><tr><td>DS1-4</td><td>OFF</td><td>ON</td><td>OFF</td></tr><tr><td>DS2-1</td><td>OFF</td><td>OFF</td><td>ON</td></tr></table></td></tr>
<tr><td>DS2-1</td></tr>
<tr><td>DS2-2</td><td rowspan="3">HP setting (Horse power)</td><td colspan="2" rowspan="3"><table><tr><th></th><th>5</th><th>6</th><th>8</th><th>10</th><th>12</th><th>14</th><th>16</th><th>HP</th></tr><tr><td>DS2-2</td><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td>OFF</td><td></td></tr><tr><td>DS2-3</td><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>OFF</td><td>ON</td><td></td></tr><tr><td>DS2-4</td><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td>ON</td><td></td></tr></table></td></tr>
<tr><td>DS2-3</td></tr>
<tr><td>DS2-4</td></tr>
</table>

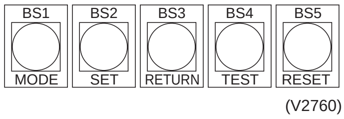
* If the DS1-4,DS2-1 setting(refrigerant classification) has not been carried out, error code “UA” is displayed and unit can not be operated.

### ■ Setting by pushbutton switches

The following settings are made by pushbutton switches on PC board.
In case of multi-outdoor unit system, various items should be set with the master unit.
(Setting with the slave unit is disabled.)
The master unit and slave unit can be discriminated with the LED indication as shown below.

| | H1P | H2P | H3P | H4P | H5P | H6P | H7P | H8P |
|---|---|---|---|---|---|---|---|---|
| Master unit | ● | ● | ○ | ● | ● | ● | ● | ○ |
| Slave unit 1 | ● | ● | ● | ● | ● | ● | ● | ◑ |
| Slave unit 2 | ● | ● | ● | ● | ● | ● | ● | ● |

(Factory setting)




There are the following three setting modes.

① **Setting mode 1 (H1P off)**

Initial status (when normal) : Used to select the cool/heat setting. Also indicates during “abnormal”, “low noise control” and “demand control”.

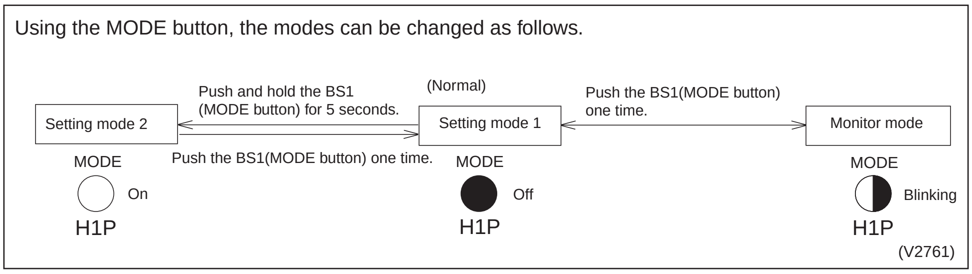
② **Setting mode 2 (H1P on)**

Used to modify the operating status and to set program addresses, etc. Usually used in servicing the system.

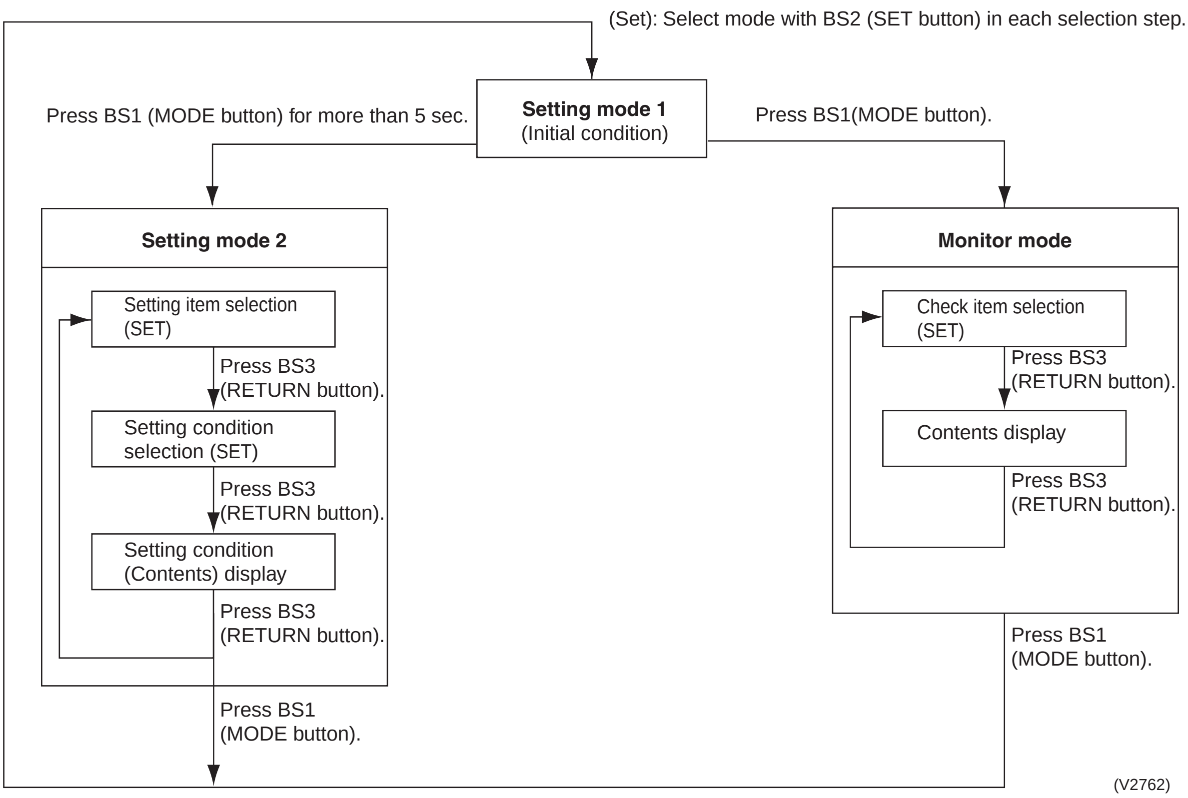
③ **Monitor mode (H1P blinks)**

Used to check the program made in Setting mode 2.

## ■ Mode changing procedure




## ■ Mode changing procedure



## a. “Setting mode 1”

Normally, “Setting mode 1” is set. In case of other status, push MODE (BS1) button one time and set to “Setting mode 1”.

↓

**<Selection of setting items>**

Push the SET button (BS2) and set LED display to a setting item you want.

↓

- Regarding setting item No. 1,5,6, only the present status is displayed. For the respective discription, refer to the table shown on lower right.
- The cool/heat selection setting can be changed on setting item 2, 3, 4.
  → After setting, push the RETURN button (BS3) and decide the item.

↓

When the RETURN button (BS3) is pushed, the status becomes the initial status of “Setting mode 1”.

(V2763)

| No. | Setting (displaying) item | LED display example | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | H1P | H2P | H3P | H4P | H5P | H6P | H7P |
| 1 | Display for malfunction / preparing / test run * | ● | ● | ○ | ● | ● | ● | ● |
| 2 | C/H selector (individual) | ● | ● | ○ | ● | ● | ● | ● |
| 3 | C/H selector (Master) | ● | ● | ● | ○ | ● | ● | ● |
| 4 | C/H selector (Slave) | ● | ● | ● | ● | ○ | ● | ● |
| 5 | Low noise operation * | ● | ● | ○ | ● | ● | ● | ● |
| 6 | Demand operation * | ● | ● | ○ | ● | ● | ● | ● |

* Setting No. 1, 5, 6 are the present status display only.

**Display for malfunction/preparing/test-run**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Normal | ● | ● | ○ | ● | ● | ● | ● |
| Malfunction | ● | ○ | ○ | ● | ● | ● | ● |
| Preparing/Test-run | ● | ◑ | ○ | ● | ● | ● | ● |

**Display during low noise operation**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Normal | ● | ● | ○ | ● | ● | ● | ● |
| During low noise operation | ● | ● | ○ | ● | ● | ○ | ● |

H3P to H5P LED display changes depending on setting No. 2, 3, 4.

**Display during demand operation**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Normal | ● | ● | ○ | ● | ● | ● | ● |
| During demand operation | ● | ● | ○ | ● | ● | ● | ○ |

H3P to H5P LED display changes depending on setting No. 2, 3, 4.

| | |
|---|---|
| ○ | : ON |
| ● | : OFF |
| ◑ | : Blinking |

## b. “Setting mode 2”

Push and hold the MODE button (BS1) for 5 seconds and set to “Setting mode 2”.

↓

**<Selection of setting items>**

Push the SET button (BS2) and set the LED display to a setting item shown in the table on the right.
↓
Push the RETURN button (BS3) and decide the item. (The present setting condition is blinked.)

↓

**<Selection of setting conditions>**

Push the SET button (BS2) and set to the setting condition you want.
↓
Push the RETURN button (BS3) and decide the condition.

↓

Push the RETURN button (BS3) and set to the initial status of “Setting mode 2”.

* If you become unsure of how to proceed, push the MODE button (BS1) and return to setting mode 1.

(V2764)

| No. | Setting item | Description |
|---|---|---|
| 0 | EMG (Emergency operation 1) | Operates by Standard compressor only when inverter compressor malfunctions. Temporary operation until the compressor is replaced. Since the comfortability is extremely deteriorated, immediately replace the compressor. (This setting is not applicable to RXYQ5M.) |
| 1 | Cool/heat unified address | Sets address for cool/heat unified operation. |
| 2 | Low noise/demand address | Address for low noise/demand operation |
| 5 | Indoor unit forced fan H | Allows forced operation of indoor unit fan while unit is stopped. (H tap) |
| 6 | Indoor unit forced operation | Allows forced operation of indoor unit. |
| 8 | Te setting | Target evaporation temperature for cooling |
| 9 | Tc setting | Target condensation temperature for heating |
| 10 | Defrost changeover setting | Changes the temperature condition for defrost and sets to quick defrost or slow defrost. |
| 11 | Sequential operation setting | Sets sequential operation |
| 12 | External low noise setting / Demand setting | Reception of external low noise or demand signal |
| 13 | AIRNET address | Set address for AIRNET. |
| 18 | High static pressure setting | Make this setting in the case of operating in high static pressure mode with diffuser duct mounted. |
| 19 | Emergency operation (STD compressor operation prohibited) | Used to operate system only with inverter compressor when STD compressor malfunctions. This is a temporary operation extremely impairing comfortable environment. Therefore, prompt replacement of the compressor is required.<br>(This operation, however, is not set with RXYQ5M.) |
| 20 | Additional refrigerant charge operation setting | Carries out additional refrigerant charge operation. |
| 21 | Refrigerant collection mode setting | Sets to refrigerant collection mode. |
| 22 | Night-time low noise setting | Sets automatic nighttime low noise operation in a simple way.<br>The operating time is based on “Starting set” and “Ending set”. |
| 25 | Low noise setting | Sets low noise level when the low noise signal is input from outside. |
| 26 | Night-time low noise control starting setting | Sets starting time of nighttime low noise operation. (Nighttime low noise setting is also required.) |
| 27 | Night-time low noise control ending setting | Sets ending time of nighttime low noise operation. (Nighttime low noise setting is also required.) |
| 28 | Power transistor check mode<br>*Check after disconnection of compressor wires | Used for trouble diagnosis of DC compressor. Since the waveform of inverter is output without wiring to the compressor, it is convenient to probe whether the trouble comes from the compressor or PC board. |
| 29 | Capacity precedence setting | If the capacity control is required, the low noise control is automatically released by this setting during carrying out low noise operation and nighttime low noise operation. |
| 30 | Demand setting 1 | Changes target value of power consumption when demand control 1 is input. |
| 32 | Normal demand setting | Normally enables demand control 1 without external input. (Effective to prevent a problem that circuit breaker of small capacity is shut down due to large load. |

| No. | Setting item | Description |
|---|---|---|
| 38 | Emergency operation (Setting for the master unit operation prohibition in multi-outdoor-unit system) | Used to temporarily prohibit the applicable outdoor unit from operating should there be any faulty part in multi-outdoor-unit system. Since the comfortable environment is extremely impaired, prompt replacement of the part is required. |
| 39 | Emergency operation (Setting for the slave unit 1 operation prohibition in multi-outdoor-unit system) | |
| 40 | Emergency operation (Setting for the slave unit 2 operation prohibition in multi-outdoor-unit system) | |

| No. | Setting item display: Setting item | MODE H1P | TEST H2P | C/H selection: IND H3P | C/H selection: Master H4P | C/H selection: Slave H5P | Low noise H6P | Demand H7P | Setting condition display | | | * Factory set |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | EMG (emergency operation) INV compressor operation inhibited. | ○ | ● | ● | ● | ● | ● | ● | Normal operation | | ○●●●●●○ | * |
| | | | | | | | | | Emergency operation | | ○●●●●○● | |
| 1 | Cool / Heat Unified address | ○ | ● | ● | ● | ● | ● | ○ | Address | 0 | ○●●●●●● | * |
| | | | | | | | | | Binary number | 1 | ○●●●●●○ | |
| | | | | | | | | | (6 digits) | ~ | | |
| | | | | | | | | | | 31 | ○●○○○○○ | |
| 2 | Low noise/demand address | ○ | ● | ● | ● | ● | ○ | ● | Address | 0 | ○●●●●●● | * |
| | | | | | | | | | Binary number | 1 | ○●●●●●○ | |
| | | | | | | | | | (6 digits) | ~ | | |
| | | | | | | | | | | 31 | ○●○○○○○ | |
| 5 | Indoor forced fan H | ○ | ● | ● | ● | ○ | ● | ○ | Normal operation | | ○●●●●●○ | * |
| | | | | | | | | | Indoor forced fan H | | ○●●●●○● | |
| 6 | Indoor forced operation | ○ | ● | ● | ● | ○ | ○ | ● | Normal operation | | ○●●●●●○ | * |
| | | | | | | | | | Indoor forced operation | | ○●●●●○● | |
| 8 | Te setting | ○ | ● | ● | ○ | ● | ● | ● | High | | ○●●●○●● | |
| | | | | | | | | | Normal (factory setting) | | ○●●●●○● | * |
| | | | | | | | | | Low | | ○●●●●●○ | |
| 9 | Tc setting | ○ | ● | ● | ○ | ● | ● | ○ | High | | ○●●●○●● | |
| | | | | | | | | | Normal (factory setting) | | ○●●●●○● | * |
| | | | | | | | | | Low | | ○●●●●●○ | |
| 10 | Defrost setting | ○ | ● | ● | ○ | ● | ○ | ● | Quick defrost | | ○●●●○●● | |
| | | | | | | | | | Normal (factory setting) | | ○●●●●○● | * |
| | | | | | | | | | Slow defrost | | ○●●●●●○ | |
| 11 | Sequential operation setting | ○ | ● | ● | ○ | ● | ○ | ○ | OFF | | ○●●●●●○ | |
| | | | | | | | | | ON | | ○●●●●○● | * |
| 12 | External low noise/ demand setting | ○ | ● | ● | ○ | ○ | ● | ● | External low noise/demand: NO | | ○●●●●●○ | * |
| | | | | | | | | | External low noise/demand: YES | | ○●●●●○● | |
| 13 | Airnet address | ○ | ● | ● | ○ | ○ | ● | ○ | Address | 0 | ○●●●●●● | * |
| | | | | | | | | | Binary number | 1 | ○●●●●●○ | |
| | | | | | | | | | (6 digits) | ~ | | |
| | | | | | | | | | | 63 | ○●○○○○○ | |
| 18 | High static pressure setting | ○ | ● | ○ | ● | ● | ○ | ● | High static pressure setting: OFF | | ○●●●●●○ | * |
| | | | | | | | | | High static pressure setting: ON | | ○●●●●○● | |
| 19 | Emergency operation (STD compressor is inhibited to operate.) | ○ | ● | ○ | ● | ● | ○ | ○ | OFF | | ○●●●●●● | * |
| | | | | | | | | | STD 1, 2 operation: Inhibited | | ○●●●●●○ | |
| | | | | | | | | | STD 2 operation: Inhibited | | ○●●●●○● | |
| 20 | Additional refrigerant operation setting | ○ | ● | ○ | ● | ○ | ● | ● | Refrigerant charging: OFF | | ○●●●●●○ | * |
| | | | | | | | | | Refrigerant charging: ON | | ○●●●●○● | |
| 21 | Refrigerant recovery mode setting | ○ | ● | ○ | ● | ○ | ● | ○ | Refrigerant recovery: OFF | | ○●●●●●○ | * |
| | | | | | | | | | Refrigerant recovery: ON | | ○●●●●○● | |
| 22 | Night-time low noise setting | ○ | ● | ○ | ● | ○ | ○ | ● | OFF | | ○●●●●●● | * |
| | | | | | | | | | Level 1 (outdoor fan with 8 step or lower) | | ○●●●●●○ | |
| | | | | | | | | | Level 2 (outdoor fan with 7 step or lower) | | ○●●●●○● | |
| | | | | | | | | | Level 3 (outdoor fan with 6 step or lower) | | ○●●●●○○ | |
| 25 | Low noise setting | ○ | ● | ○ | ○ | ● | ● | ○ | Level 1 (outdoor fan with 8 step or lower) | | ○●●●●●○ | |
| | | | | | | | | | Level 2 (outdoor fan with 7 step or lower) | | ○●●●●○● | * |
| | | | | | | | | | Level 3 (outdoor fan with 6 step or lower)* | | ○●●●○●● | |

| No. | Setting item | MODE H1P | TEST H2P | C/H selection IND H3P | C/H selection Master H4P | C/H selection Slave H5P | Low noise H6P | Demand H7P | Setting condition display | | * Factory set |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | Night-time low noise operation start setting | ○ | ● | ○ | ○ | ● | ○ | ● | About 20:00<br>About 22:00 (factory<br>About 24:00 | ○●●●●●○<br>○●●●●○●<br>○●●●○●● | <br>*<br> |
| 27 | Night-time low noise operation end setting | ○ | ● | ○ | ○ | ● | ○ | ○ | About 6:00<br>About 7:00<br>About 8:00 (factory setting) | ○●●●●●○<br>○●●●●○●<br>○●●●○●● | <br><br>* |
| 28 | Power transistor check mode | ○ | ● | ○ | ○ | ○ | ● | ● | OFF<br>ON | ○●●●●●○<br>○●●●●○● | *<br> |
| 29 | Capacity precedence setting | ○ | ● | ○ | ○ | ○ | ● | ○ | OFF<br>ON | ○●●●●●○<br>○●●●●○● | *<br> |
| 30 | Demand setting 1 | ○ | ● | ○ | ○ | ○ | ○ | ● | 60 % demand<br>70 % demand<br>80 % demand | ○●●●●●○<br>○●●●●○●<br>○●●●○●● | <br>*<br> |
| 32 | Continuous demand setting | ○ | ○ | ● | ● | ● | ● | ● | OFF<br>ON | ○●●●●●○<br>○●●●●○● | *<br> |
| 38 | Emergency operation (Master unit with multi-outdoor-unit system is inhibited to operate.) | ○ | ○ | ● | ● | ○ | ○ | ● | OFF<br>Master unit operation: Inhibited | ○●●●●●○<br>○●●●●○● | *<br> |
| 39 | Emergency operation (Slave unit 1 with multi-outdoor-unit system is inhibited to operate.) | ○ | ○ | ● | ● | ○ | ○ | ○ | OFF<br>Slave unit 1 operation: Inhibited | ○●●●●●○<br>○●●●●○● | *<br> |
| 40 | Emergency operation (Slave unit 2 with multi-outdoor-unit system is inhibited to operate.) | ○ | ○ | ● | ○ | ● | ● | ● | OFF<br>Slave unit 2 operation: Inhibited | ○●●●●●○<br>○●●●●○● | *<br> |

## c. Monitor mode

To enter the monitor mode, push the MODE button (BS1) when in “Setting mode 1”.

↓

**<Selection of setting item>**

Push the SET button (BS2) and set the LED display to a setting item.

↓

**<Confirmation on setting contents>**

Push the RETURN button (BS3) to display different data of set items.

↓

Push the RETURN button (BS3) and switches to the initial status of “Monitor mode”.

∗ Push the MODE button (BS1) and returns to “Setting mode 1”.

(V2765)

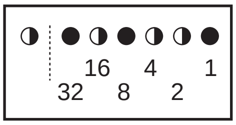
| No. | Setting item | LED display | | | | | | | Data display |
|---|---|---|---|---|---|---|---|---|---|
| | | H1P | H2P | H3P | H4P | H5P | H6P | H7P | |
| 0 | Number of units for sequential starting, and others | ◑ | ● | ● | ● | ● | ● | ● | See below |
| 1 | C/H unified address | ◑ | ● | ● | ● | ● | ● | ○ | Lower 6 digits |
| 2 | Low noise/demand address | ◑ | ● | ● | ● | ● | ○ | ● | |
| 3 | Not used | ◑ | ● | ● | ● | ● | ○ | ○ | |
| 4 | Airnet address | ◑ | ● | ● | ● | ○ | ● | ● | |
| 5 | Number of connected indoor units | ◑ | ● | ● | ● | ○ | ● | ○ | |
| 6 | Number of connected BS units | ◑ | ● | ● | ● | ○ | ○ | ● | |
| 7 | Number of connected zone units (excluding outdoor and BS unit) | ◑ | ● | ● | ● | ○ | ○ | ○ | |
| 8 | Number of outdoor units | ◑ | ● | ● | ○ | ● | ● | ● | |
| 9 | Number of connected BS units | ◑ | ● | ● | ○ | ● | ● | ○ | Lower 4 digits: upper |
| 10 | Number of connected BS units | ◑ | ● | ● | ○ | ● | ○ | ● | Lower 4 digits: lower |
| 11 | Number of zone units (excluding outdoor and BS unit) | ◑ | ● | ● | ○ | ● | ○ | ○ | Lower 6 digits |
| 12 | Number of terminal blocks | ◑ | ● | ● | ○ | ○ | ● | ● | Lower 4 digits: upper |
| 13 | Number of terminal blocks | ◑ | ● | ● | ○ | ○ | ● | ○ | Lower 4 digits: lower |
| 14 | Contents of malfunction (the latest) | ○ | ● | ● | ○ | ○ | ○ | ● | Malfunction code table<br>Refer page 154, 155. |
| 15 | Contents of malfunction (1 cycle before) | ○ | ● | ● | ○ | ○ | ○ | ○ | |
| 16 | Contents of malfunction (2 cycle before) | ○ | ● | ○ | ● | ● | ● | ● | |
| 20 | Contents of retry (the latest) | ○ | ● | ○ | ● | ○ | ● | ● | |
| 21 | Contents of retry (1 cycle before) | ○ | ● | ○ | ● | ○ | ● | ○ | |
| 22 | Contents of retry (2 cycle before) | ○ | ● | ○ | ● | ○ | ○ | ● | |

**Setting item 0 Display contents of “Number of units for sequential start, and others”**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Number of units for sequential start | 1 unit | ◑ | ● | ● | ● | ● | ● | ● |
| | 2 units | ◑ | ● | ◑ | ● | ● | ● | ● |
| | 3 units | ◑ | ● | ○ | ● | ● | ● | ● |
| EMG operation /backup operation setting | ON | ◑ | ● | ● | ○ | ● | ● | ● |
| | OFF | ◑ | ● | ● | ● | ● | ● | ● |
| Defrost select setting | Short | ◑ | ● | ● | ● | ○ | ● | ● |
| | Medium | ◑ | ● | ● | ● | ◑ | ● | ● |
| | Long | ◑ | ● | ● | ● | ● | ● | ● |
| Te setting | H | ◑ | ● | ● | ● | ● | ○ | ● |
| | M | ◑ | ● | ● | ● | ● | ◑ | ● |
| | L | ◑ | ● | ● | ● | ● | ● | ● |
| Tc setting | H | ◑ | ● | ● | ● | ● | ● | ○ |
| | M | ◑ | ● | ● | ● | ● | ● | ◑ |
| | L | ◑ | ● | ● | ● | ● | ● | ● |

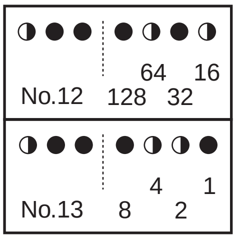
Push the SET button and match with the LEDs No. 1 - 15, push the RETURN button, and enter the data for each setting.

⋆ Data such as addresses and number of units is expressed as binary numbers; the two ways of expressing are as follows:




The No. 1 cool/heat unified address is expressed as a binary number consisting of the lower 6 digits. (0 - 63)

In ① the address is 010110 (binary number), which translates to 16 + 4 + 2 = 22 (base 10 number). In other words, the address is 22.




The number of terminal blocks for No. 12 and 13 is expressed as an 8-digit binary number, which is the combination of four upper, and four lower digits for No. 12 and 13 respectively. (0 - 128)
In ② the address for No. 12 is 0101, the address for No. 13 is 0110, and the combination of the two is 01010110 (binary number), which translates to 64 + 16 + 4 + 2 = 86 (base 10 number). In other words, the number of terminal block is 86..

⋆ See the preceding page for a list of data, etc. for No. 0 - 22.

## 3.2.2 Cool / Heat Mode Switching

There are the following 5 cool/heat switching modes.

① Set cool/heat separately for each outdoor unit system by indoor unit Remote Control.

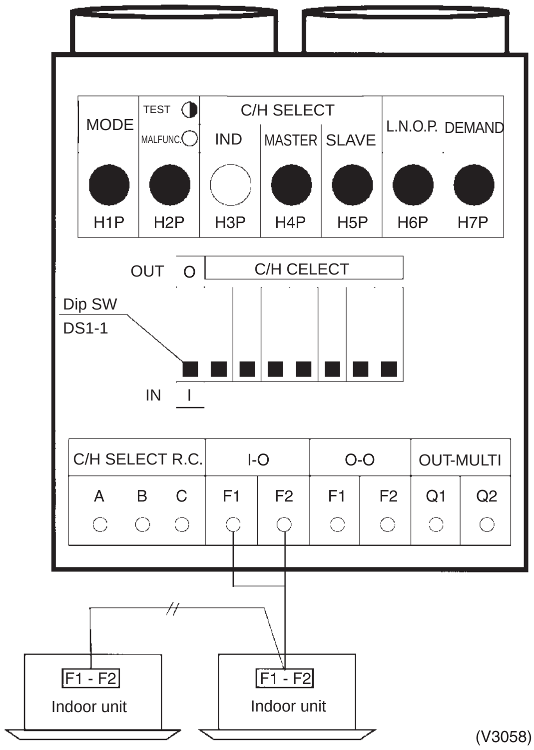
② Set cool/heat separately for each outdoor unit system by cool/heat switching Remote Control.

③ Set cool/heat for more than one outdoor unit system simultaneously in accordance with unified master outdoor unit by indoor unit Remote Control.

3 Set cool/heat for more than one outdoor unit system simultaneously in accordance with unified master outdoor unit by cool/heat switching Remote Control.

**① Set Cool/Heat Separately for Each Outdoor System by Indoor Unit Remote Control**

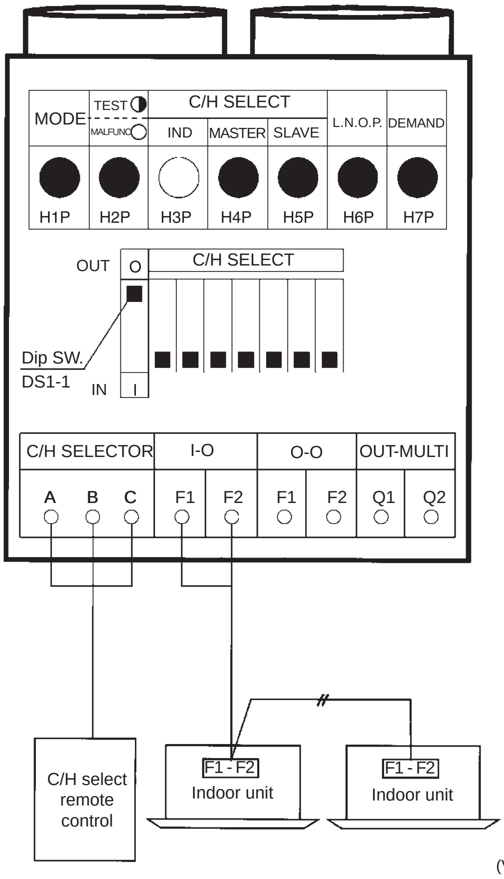
- ◆ It does not matter whether or not there is outdoor - outdoor unit wiring.
- ◆ Set outdoor unit PC board DS1-1 to “indoor” (factory set).
- ◆ Set cool/heat switching to “individual” for “Setting mode 1” (factory set).




(V3058)

**② Set Cool / Heat Separately for Each Outdoor Unit System by Cool/Heat Switching Remote Control**

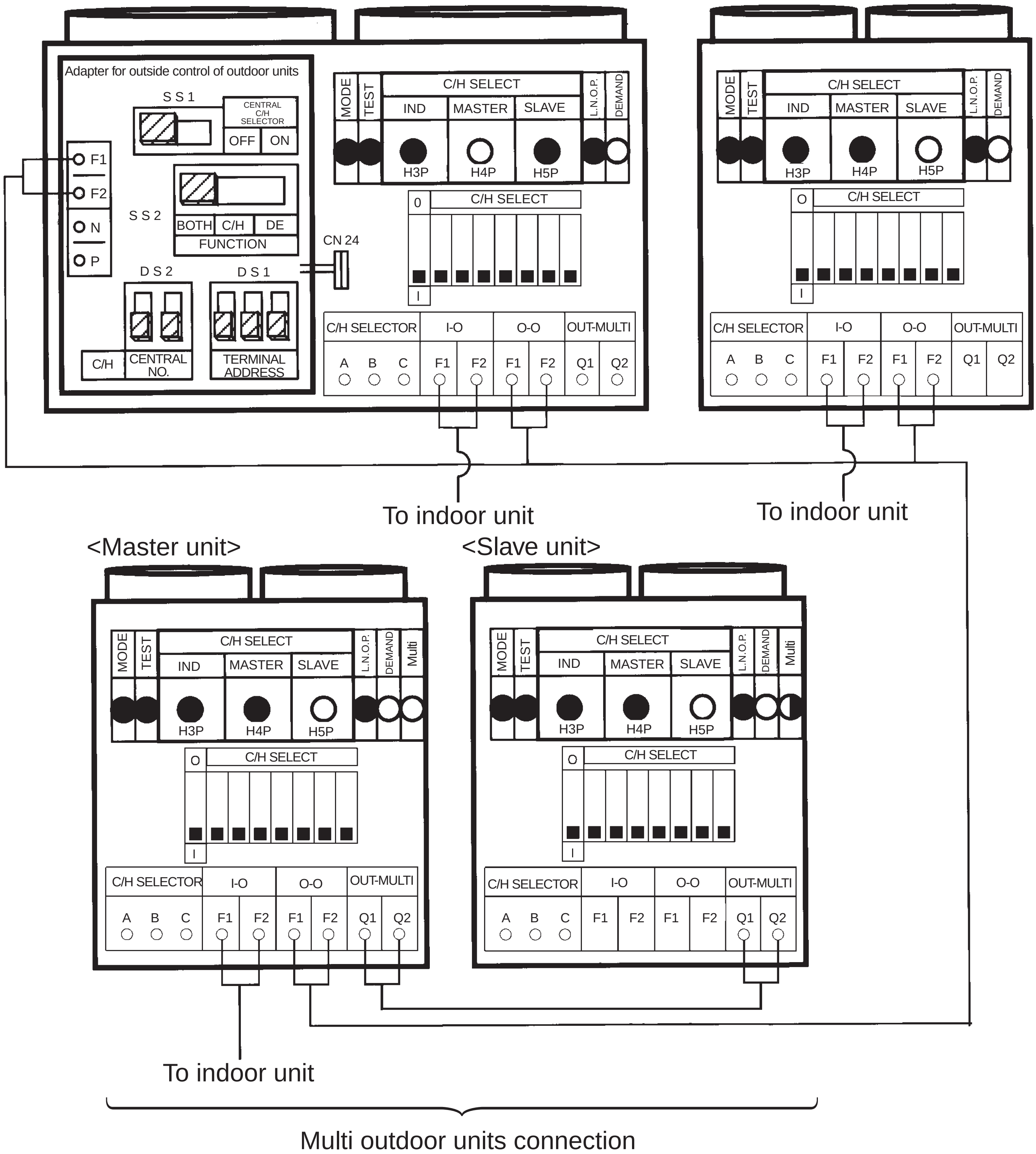
- It does not matter whether or not there is outdoor - outdoor unit wiring.
- Set outdoor unit PC board DS1-1 to “outdoor” (factory set).
- Set cool/heat switching to “individual” for “Setting mode 1” (factory set).




(V3059)

### ③ Set Cool / Heat for More Than One Outdoor Unit System Simultaneously in Accordance with Unified Master Outdoor Unit by Indoor Unit Remote Control

- Install the outdoor unit external control adapter on either the outdoor-outdoor, indoor-outdoor, or transmission line.
- Set outdoor unit PC board DS1-1 to "Indoor" (factory set).
- In setting mode 1, set the outdoor unit you want to give cool/heat selection permission to as the group master, and set the other outdoor units as group slave units.
- Set the outdoor unit external control adapter SS1 to Unified (factory set) or Cool, and SS2 to No (factory set).



**④ Set Cool / Heat for More Than One Outdoor Unit System Simultaneously in Accordance with Unified Master Outdoor Unit by Cool/Heat Switching Remote Control**

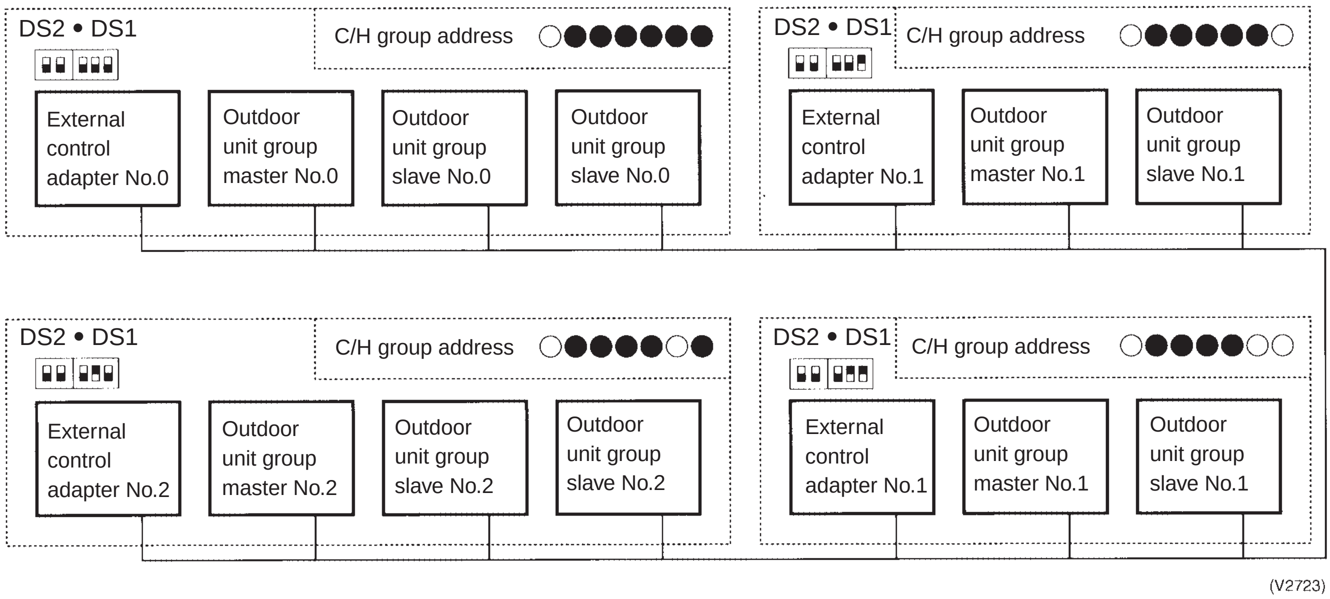
◆ Add and change the following items to ③.

⋆ Install cool/heat switching Remote Control on the group master outdoor unit.

⋆ Set SS1 on the group master outdoor unit PC board.

**Supplementation on ③ and ④.**

When switching cool/heat for each adapter PC board with the use of more than one adapter PC board, set the address of the adapter PC board DS1 and DS2 so that it matches the unified cool/heat address of outdoor unit PC board.



**Address setting for ③ and ④ (Set lower 5 digits with binary number.) [No.0 to No.31]**

| Address No. | Outdoor unit PC board LED Set with setting mode 2 | External control adapter for outdoor unit DS2 DS1 |
|---|---|---|
| No 0 | ○● ●●●●● 0 | 0 |
| No 1 | ○● ●●●●○ 1 | 1 |
| No 2 | ○● ●●●○● 2 | 2 |
| No 3 | ○● ●●●○○ 3 | 3 |
| No 4 | ○● ●●○●● 4 | 4 |
| ≀ | ≀ | ≀ |
| No 30 | ○● ○○○○● 30 | 30 |
| No 31 | ○● ○○○○○ 31 | 31 |

○ ON ● OFF Upper position (ON) lower position (OFF)

(The shaded part shows knob)

(V2724)

## 3.2.3 Setting of Low Noise Operation and Demand Operation

### Setting of Low Noise Operation

By connecting the external contact input to the low noise input of the outdoor unit external control adapter (optional), you can lower operating noise by 2-3 dB.

**A. When the low noise operation is carried out by external instructions (with the use of the outdoor unit external control adapter)**

1. Set “External low noise / Demand YES/NO setting” to “External low noise / Demand YES”. (Set by Setting Mode 2)
2. Set “External low noise level setting” on the outdoor unit PC board, as the need arises. (Lower noise operation can be carried out by “Mode 2” than by “Mode 1”, and by “Mode 3” than by “Mode 2”.)
3. Set “Capacity precedence setting” on the outdoor unit PC board, as the need arises. (If set to “ON”, when air conditioning load gets higher, the low noise instructions are neglected to switch to normal operation.) (Set by Setting Mode 2)

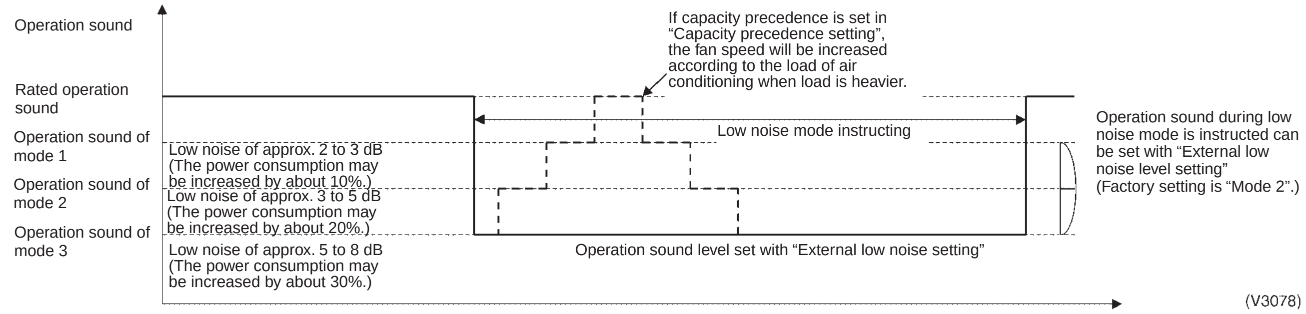
**B. When the low noise operation is carried out automatically at night (The outdoor unit external control adapter is not required)**

1. Set “Night-time low noise setting” on the outdoor unit PC board. (Set by Setting Mode 2) (Lower noise operation can be carried out by “Mode 2” than by “Mode 1”, and by “Mode 3” than by “Mode 2”.)
2. Set “Night-time low noise start setting” on the outdoor unit PC board, as the need arises.

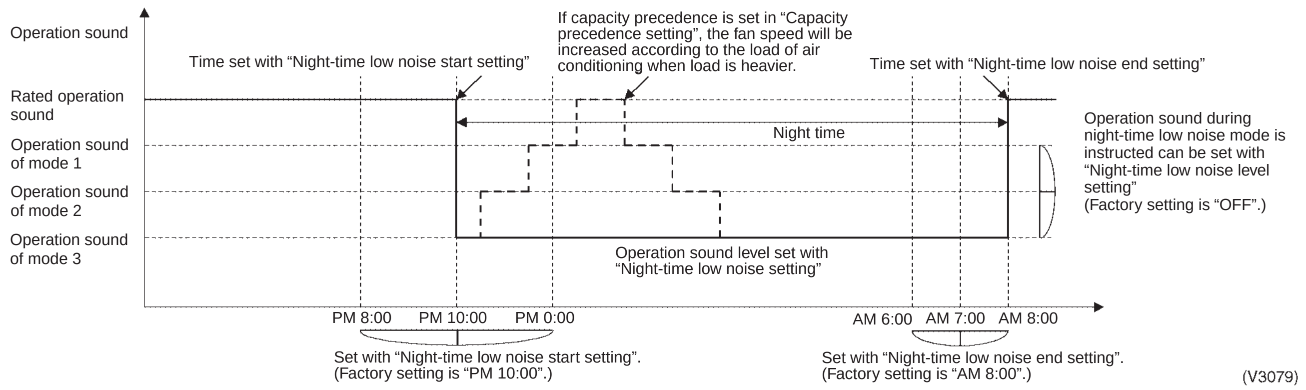
(Set by Setting Mode 2)
(Since the time is presumed in accordance with the outdoor temperature, the starting time is a target only.)

3. Set “Night-time low noise end setting” on the outdoor unit PC board, as the need arises.
   (Set by Setting Mode 2)
   (Since the time is presumed in accordance with the outdoor temperature, the ending time is a target only.)
4. Set “Capacity precedence setting” on the outdoor unit PC board, as the need arises.
   (Set by Setting Mode 2)
   (If set to “ON”, when air conditioning load gets higher, the status is switched to normal operation even at night.)

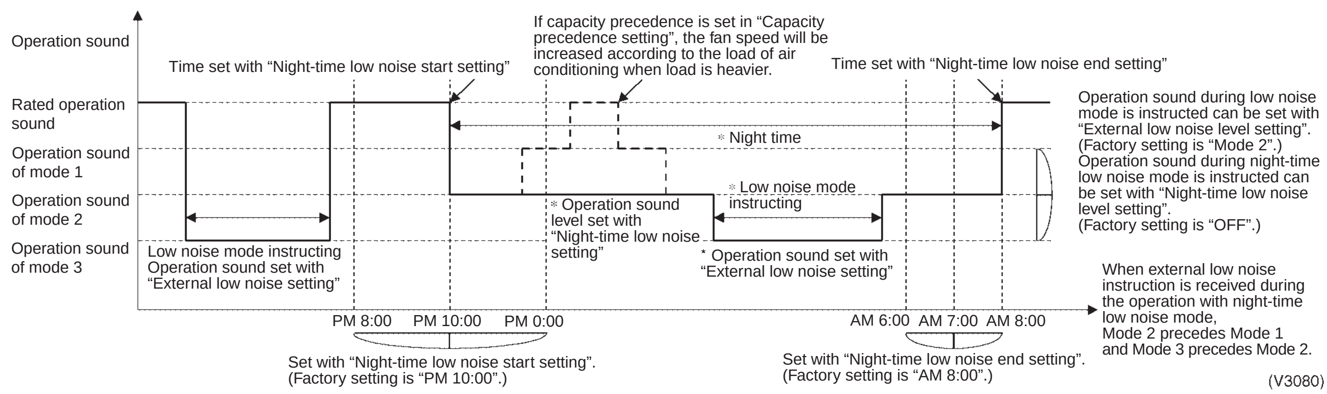
## Image of operation in the case of A




## Image of operation in the case of B




## Image of operation in the case of A, B



## Setting of Demand Operation

By connecting the external contact input to the demand input of the outdoor unit external control adapter (optional), the power consumption of unit operation can be saved suppressing the compressor operating condition.

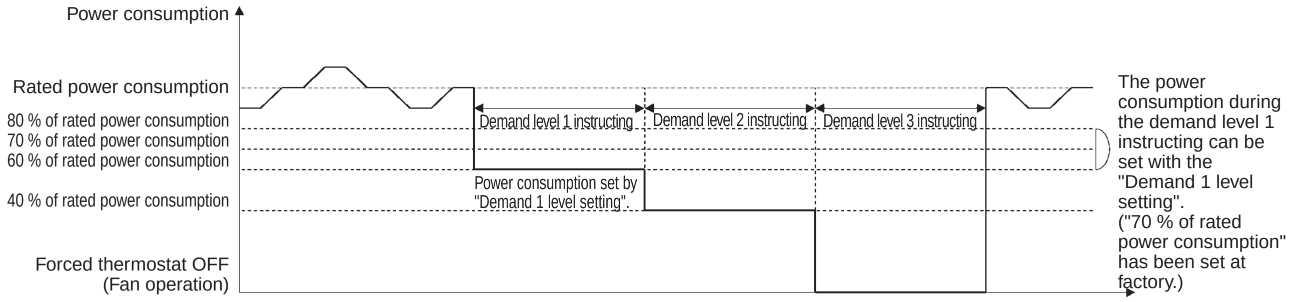
**A. When the demand operation is carried out by external instructions (with the use of the outdoor unit external control adapter).**

- Set the "External low noise/Demand YES/NO setting" switch on the outdoor unit PCB to the "External low noise/Demand YES".
  (Set by Setting Mode 2)
- Set the "Demand 1 level setting " on the outdoor unit PCB, as the need arises.
  (During the demand level 1 instruction, the power consumption can be saved to 80 %, 70 % or 60 % of the rated value respectively.)

**B. When the continuous demand operation is carried out. (Use of the outdoor unit external control adapter is not required.)**

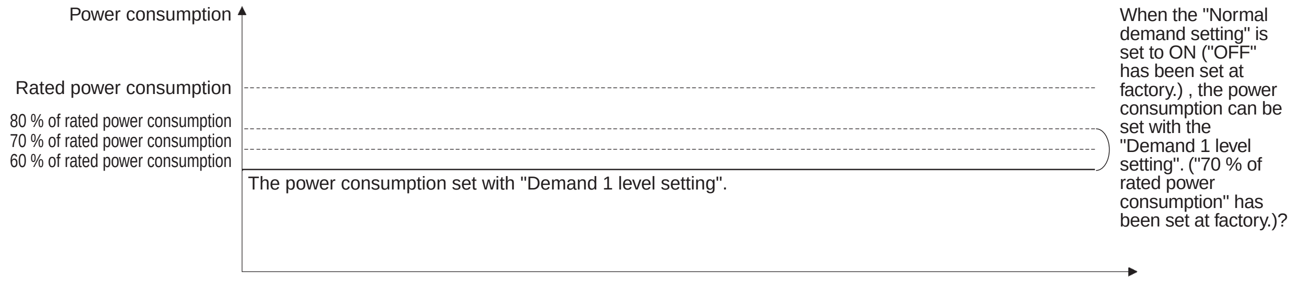
- Set the "Continuous demand setting" on the outdoor unit PCB.
- If the "Continuous demand setting" is set to the "Continuous demand 1 fixing", set the "Demand 1 setting " on the outdoor unit PCB, as the need arises.
  (During the continuous demand level 1 operation, the power consumption can be saved to 80 %, 70 % or 60 % of the rated value respectively.)

## Image of operation in the case of A



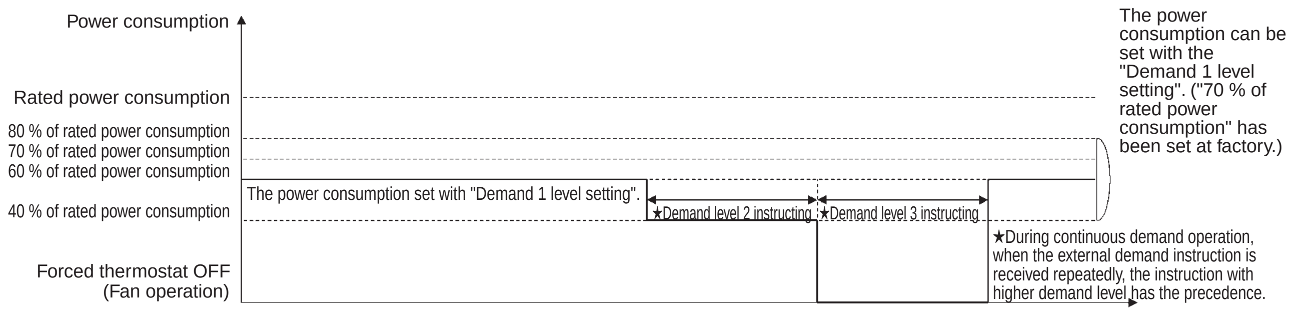

(V3081)

## Image of operation in the case of B




(V3082)

## Image of operation in the case of A and B




(V3083)

## Detailed Setting Procedure of Low Noise Operation and Demand Control

**1. Setting mode 1 (H1P off)**

① In setting mode 2, push the BS1 (MODE button) one time. → Setting mode 2 is entered and H1P lights.
During the setting mode 1 is displayed, “In low noise operation” and “In demand control” are displayed.

**2. Setting mode 2 (H1P on)**

① In setting 1, push and hold the BS1 (MODE button) for more than 5 seconds. → Setting mode 2 is entered and H1P lights.
② Push the BS2 (SET button) several times and match the LED display with the Setting No. you want.
③ Push the BS3 (RETURN button) one time, and the present setting content is displayed.
→ Push the BS2 (SET button) several times and match the LED display with the setting content (as shown below) you want.
④ Push the BS3 (RETURN button) two times. → Returns to ①.
⑤ Push the BS1 (MODE button) one time. → Returns to the setting mode 1 and turns H1P off.

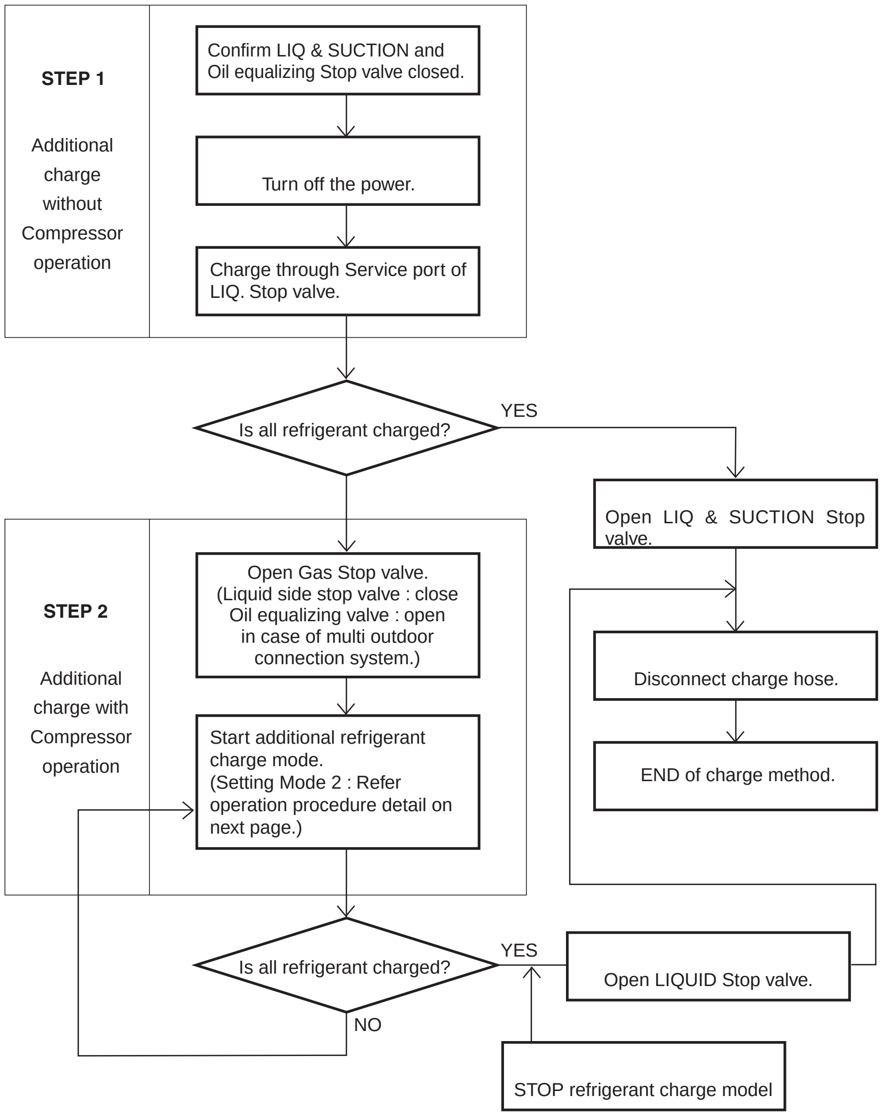
| Setting No. | Setting contents | ① Setting No. indication H1P | H2P | H3P | H4P | H5P | H6P | H7P | ② Setting No. indication H1P | H2P | H3P | H4P | H5P | H6P | H7P | Setting contents | ③ Setting contents indication (Initial setting) H1P | H2P | H3P | H4P | H5P | H6P | H7P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 | Night-time low noise setting | ○ | ● | ● | ● | ● | ● | ● | ○ | ● | ○ | ● | ○ | ○ | ● | OFF (Factory setting) | ○ | ● | ● | ● | ● | ● | ● |
| | | | | | | | | | | | | | | | | Mode 1 | ○ | ● | ● | ● | ● | ● | ◎ |
| | | | | | | | | | | | | | | | | Mode 2 | ○ | ● | ● | ● | ● | ◎ | ◎ |
| | | | | | | | | | | | | | | | | Mode 3 | ○ | ● | ● | ● | ● | ◎ | ◎ |
| 25 | External low noise setting | | | | | | | | ○ | ● | ○ | ○ | ● | ● | ○ | Mode 1 | ○ | ● | ● | ● | ● | ● | ◎ |
| | | | | | | | | | | | | | | | | Mode 2 (Factory setting) | ○ | ● | ● | ● | ● | ◎ | ● |
| | | | | | | | | | | | | | | | | Mode 3 | ○ | ● | ● | ● | ● | ● | ◎ |
| 26 | Night-time low noise start setting | | | | | | | | ○ | ● | ○ | ○ | ● | ○ | ● | PM 8:00 | ○ | ● | ● | ● | ● | ◎ | ● |
| | | | | | | | | | | | | | | | | PM 10:00 (Factory setting) | ○ | ● | ● | ● | ◎ | ● | ● |
| | | | | | | | | | | | | | | | | PM 0:00 | ○ | ● | ● | ● | ● | ● | ◎ |
| 27 | Night-time low noise end setting | | | | | | | | ○ | ● | ○ | ○ | ● | ○ | ○ | AM 6:00 | ○ | ● | ● | ● | ● | ◎ | ● |
| | | | | | | | | | | | | | | | | AM 7:00 | ○ | ● | ● | ● | ◎ | ● | ● |
| | | | | | | | | | | | | | | | | AM 8:00 (Factory setting) | ○ | ● | ● | ● | ● | ● | ◎ |
| 29 | Capacity precedence setting | | | | | | | | ○ | ● | ○ | ○ | ○ | ● | ○ | Low noise precedence (Factory setting) | ○ | ● | ● | ● | ● | ● | ● |
| | | | | | | | | | | | | | | | | Capacity precedence | ○ | ● | ● | ● | ● | ◎ | ● |
| 30 | Demand setting 1 | | | | | | | | ○ | ● | ○ | ○ | ○ | ○ | ● | 60 % of rated power consumption | ○ | ● | ● | ● | ● | ● | ◎ |
| | | | | | | | | | | | | | | | | 70 % of rated power consumption (Factory setting) | ○ | ● | ● | ● | ● | ◎ | ● |
| | | | | | | | | | | | | | | | | 80 % of rated power consumption | ○ | ● | ● | ● | ◎ | ● | ● |
| 32 | Continuous demand setting | | | | | | | | ○ | ● | ● | ● | ● | ● | ● | OFF (Factory setting) | ○ | ● | ● | ● | ● | ● | ◎ |
| | | | | | | | | | | | | | | | | Continuous demand 1 fixed | ○ | ● | ● | ● | ● | ◎ | ● |
| 12 | External low noise / Demand setting | | | | | | | | ○ | ● | ● | ○ | ○ | ● | ● | NO (Factory set) | ○ | ● | ● | ● | ● | ● | ○ |
| | | | | | | | | | | | | | | | | YES | ○ | ● | ● | ● | ● | ○ | ● |

Setting mode indication section — Setting No. indication section — Set contents indication section

### 3.2.4 Setting of Refrigerant Additional Charging Operation

When additional refrigerant is not charged all with outdoor unit in stop mode, operate the outdoor unit and charge the liquid refrigerant from the service port of liquid stop value. The additional charging operation is activated by pushbutton switch on the outdoor unit PC board.

**[Additional refrigerant charge total flow]**




(V2892)

### 3.2.5 Setting of Refrigerant Recovery Mode

When carrying out the refrigerant collection on site, fully open the respective expansion valve of indoor and outdoor units

**[Operation procedure]**

① In **setting mode 2** with units in stop mode, set “B Refrigerant Recovery / Vacuuming mode” to ON. The respective expansion valve of indoor and outdoor units are fully opened. (H2P turns to display “TEST OPERATION” (blinks), “TEST OPERATION” and “IN CENTRALIZED CONTROL” are displayed on the Remote Control, and the operation is prohibited.

② Collect the refrigerant using a refrigerant recovery unit. (See the instruction attached to the refrigerant recovery unit for more detal.)

③ Press Mode button “BS1” once and reset “Setting Mode 2”.

**[Operation procedure detail]**

① After turning the respective remote switch of indoor and outdoor units off and charging the refrigerant, turn on the power of indoor and outdoor units.
Do not fail to turn the power off and charge the refrigerant with outdoor unit in stop mode before adding the refrigerant following this procedure, otherwise resulting in trouble.

② Fully open the stop valve on the gas side and oil equalizing valve for multi outdoor connection, and do not fail to fully close the stop valve on the liquid side. (If the stop valve on the liquid side is open, the refrigerant cannot be charged.)

③ In **Setting mode 2** (H1P : ON) with outdoor unit in stop mode, Set “A Additional refrigerant charging operation” switch to ON to start the operation. (H2P turns to display TEST OPERATION (blinks), and “TEST OPERATION” and “IN CENTRALIZED CONTROL” are displayed on the Remote Control.)

④ When the refrigerant is charged up to the specified amount, press the RETURN button (BS3) to stop charging.
The charging operation is automatically stopped after operating for a maximum of about 30 minutes.
If the charging is not complete within 30 minutes, set the A Additional refrigerant charging operation again to start charging. When the charging immediately stops even by restarting, the refrigerant is charged excessively. The refrigerant cannot be charged any more.

⑤ **Do not fail to fully open the stop valve on the liquid side** as soon as disconnecting the refrigerant charging hose.
**(The piping may be burst due to the liquid sealing.)**

**[Operation state]**

- Compressor frequency : 210Hz
- Y1S, Y2S, Y3S Solenoid valve : Open
- Outdoor unit fan : High pressure control
- Indoor unit expansion valve (All unit) : 1024 pulse
- Indoor unit fan : H tap

## 3.2.6 Setting of Vacuuming Mode

In order to perform vacuuming operation at site, fully open the expansion valves of indoor and outdoor units to turn on some solenoid valves.

**[Operating procedure]**

① With **Setting Mode 2** while the unit stops, set (B) Refrigerant recovery / Vacuuming mode to ON. The expansion valves of indoor and outdoor units fully open and some of solenoid valves open.
(H2P blinks to indicate the test operation, and the Remote Control displays "Test Operation" and "In Centralized control", thus prohibiting operation.)
After setting, do not cancel “Setting Mode 2” until completion of Vacuuming operation.

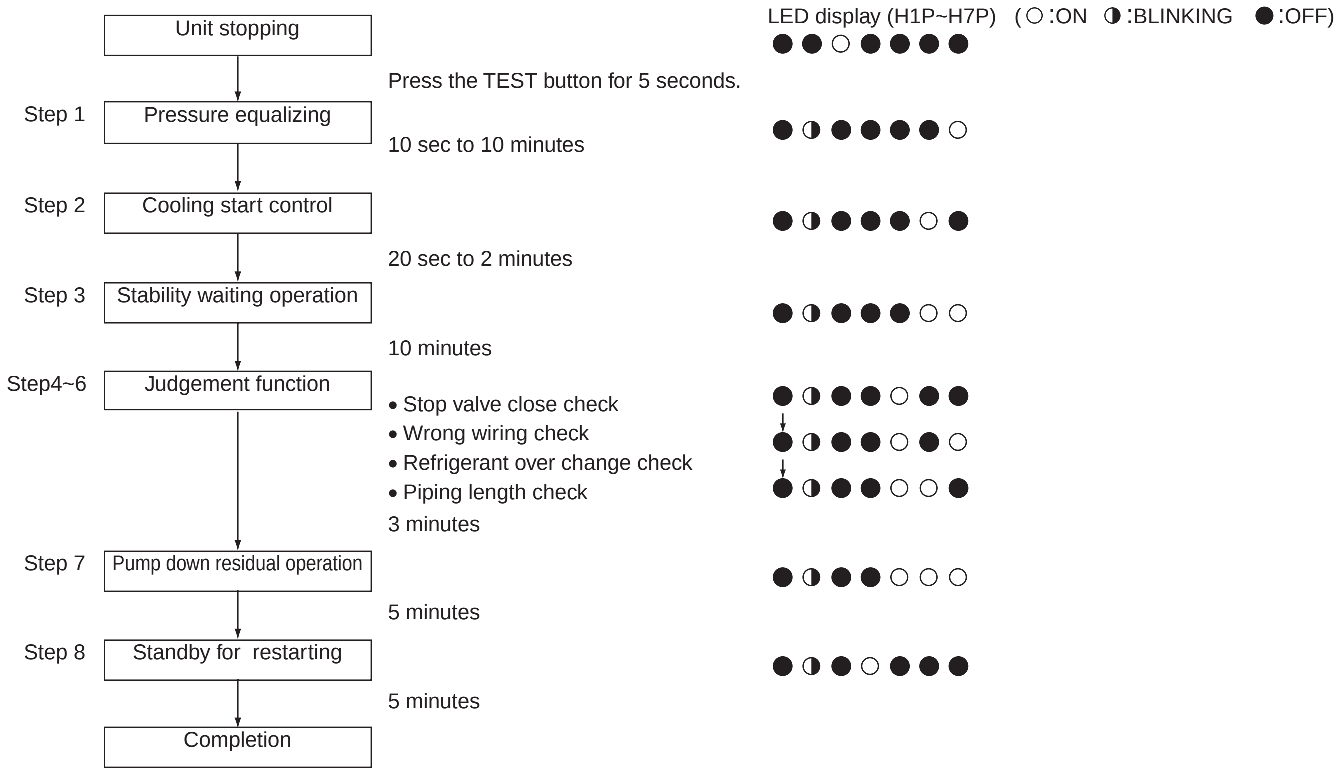
② Use the vacuum pump to perform vacuuming operation.

③ Press Mode button “BS1” once and reset “Setting Mode 2”.

## 3.2.7 Check Operation

To prevent any trouble in the period of installation at site, the system is provided with a test operation mode enabling check for incorrect wiring, stop valve left in closed, coming out (or misplacing with suction pipe thermistor) of discharge pipe thermistor and judgment of piping length, refrigerant overcharging, and learning for the minimum opening degree of motorized valve.

CHECK OPERATION FUNCTION




## 3.2.8 Power Transistor Check Operation

When the inverter system malfunctions (malfunction of inverter, INV compressor), to locate where the malfunction occurs, switching to the power transistor check mode of inverter in the service mode setting enables not to judge the position detection signal malfunction but to output waveform only during inverter operation. (The waveform can be checked by disconnecting the wiring of compressor.)

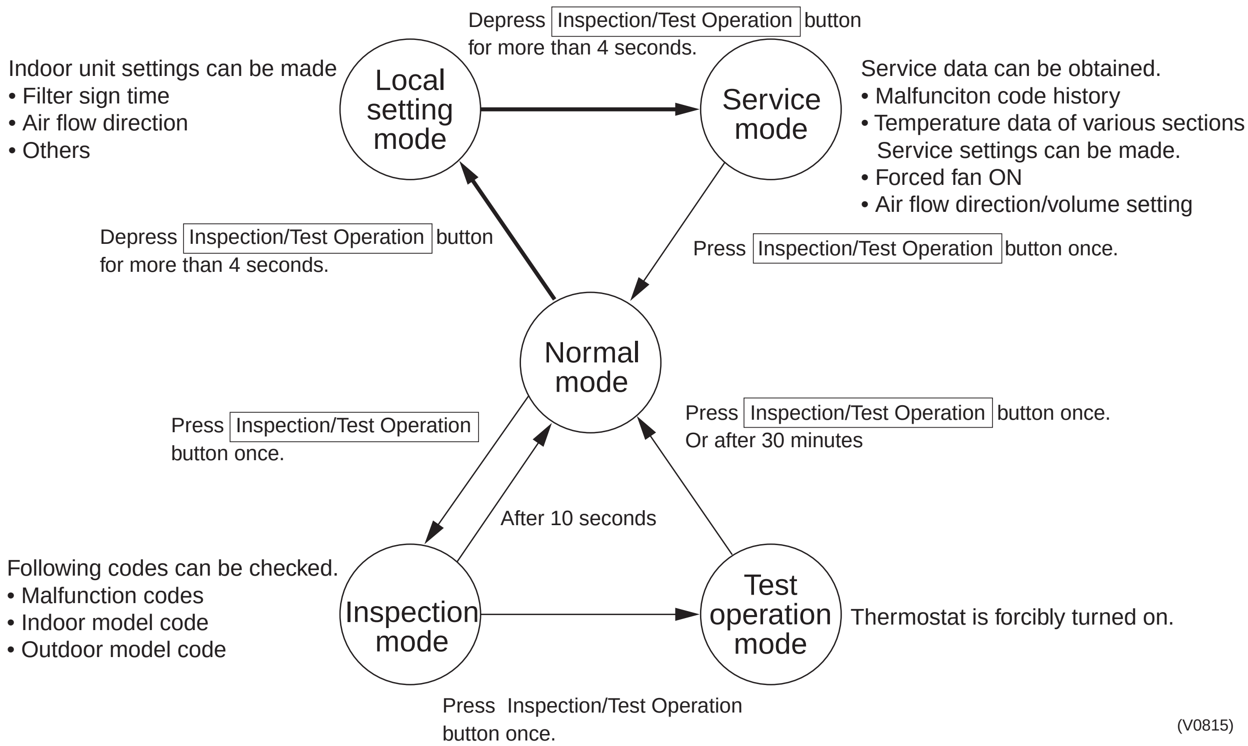
**Note:** Be sure to disconnect the compressor wiring when conducting the check operation mentioned above.
When the output voltage is approx. 50 V (10 Hz) and the voltage balance between phases U-V, V-W, W-U is within ±5%, the inverter PCB is normal.

# Part 6
# Troubleshooting

# 1. Troubleshooting by Remote Control

## 1.1 The INSPECTION / TEST Button

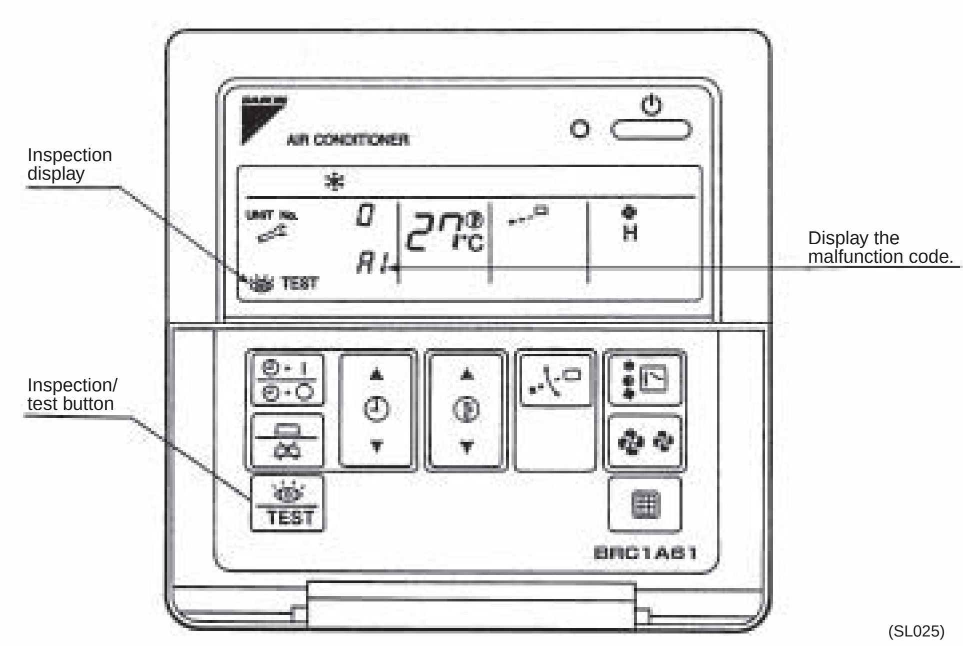
The following modes can be selected by using the [Inspection/Test Operation] button on the Remote Control.



# 1.2 Self-diagnosis by Wired Remote Control

**Explanation**

If operation stops due to malfunction, the Remote Control's operation LED blinks, and malfunction code is displayed. (Even if stop operation is carried out, malfunction contents are displayed when the inspection mode is entered.) The malfunction code enables you to tell what kind of malfunction caused operation to stop. See page 151 for malfunction code and malfunction contents.




(SL025)

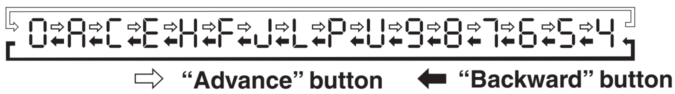
# 1.3 Self-diagnosis by infrared Remote Control

**In the Case of BRC7C ~ Type**

If equipment stops due to a malfunction, the operation indicating LED on the light reception section flashes.
The malfunction code can be determined by following the procedure described below. (The malfunction code is displayed when an operation error has occurred. In normal condition, the malfunction code of the last problem is displayed.)

1. Press the INSPECTION/TEST button to select “Inspection.”
   The equipment enters the inspection mode. The “Unit” indication lights and the Unit No. display shows flashing “0” indication.
2. Set the Unit No.
   Press the UP or DOWN button and change the Unit No. display until the buzzer (*1) is generated from the indoor unit.
   *1 Number of beeps
   **3 short beeps :** Conduct all of the following operations.
   **1 short beep :** Conduct steps 3 and 4.
   Continue the operation in step 4 until a buzzer remains ON. The continuous buzzer indicates that the malfunction code is confirmed.
   **Continuous beep :** No abnormality.
3. Press the MODE selector button.
   The left “0” (upper digit) indication of the malfunction code flashes.
4. Malfunction code upper digit diagnosis
   Press the UP or DOWN button and change the malfunction code upper digit until the malfunction code matching buzzer (*2) is generated.

■ The upper digit of the code changes as shown below when the UP and DOWN buttons are pressed.




(SE006)

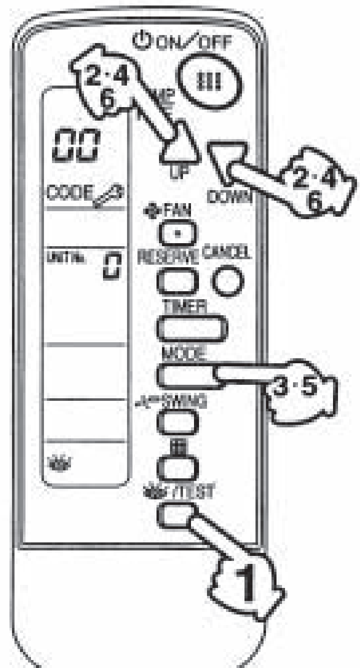
*2 Number of beeps
**Continuous beep :** Both upper and lower digits matched. (Malfunction code confirmed)
**2 short beeps :** Upper digit matched.
**1 short beep :** Lower digit matched.

5. Press the MODE selector button.
   The right “0” (lower digit) indication of the malfunction code flashes.
6. Malfunction code lower digit diagnosis
   Press the UP or DOWN button and change the malfunction code lower digit until the continuous malfunction code matching buzzer (*2) is generated.

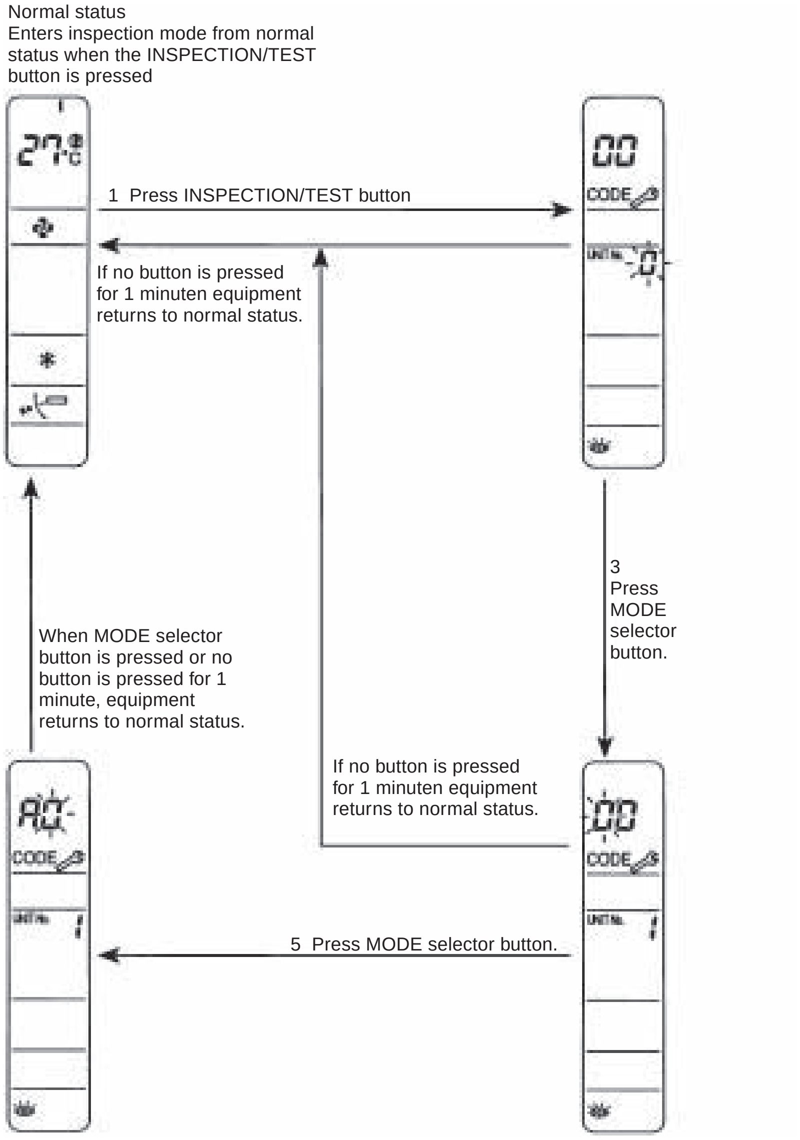
■ The lower digit of the code changes as shown below when the UP and DOWN buttons are pressed.



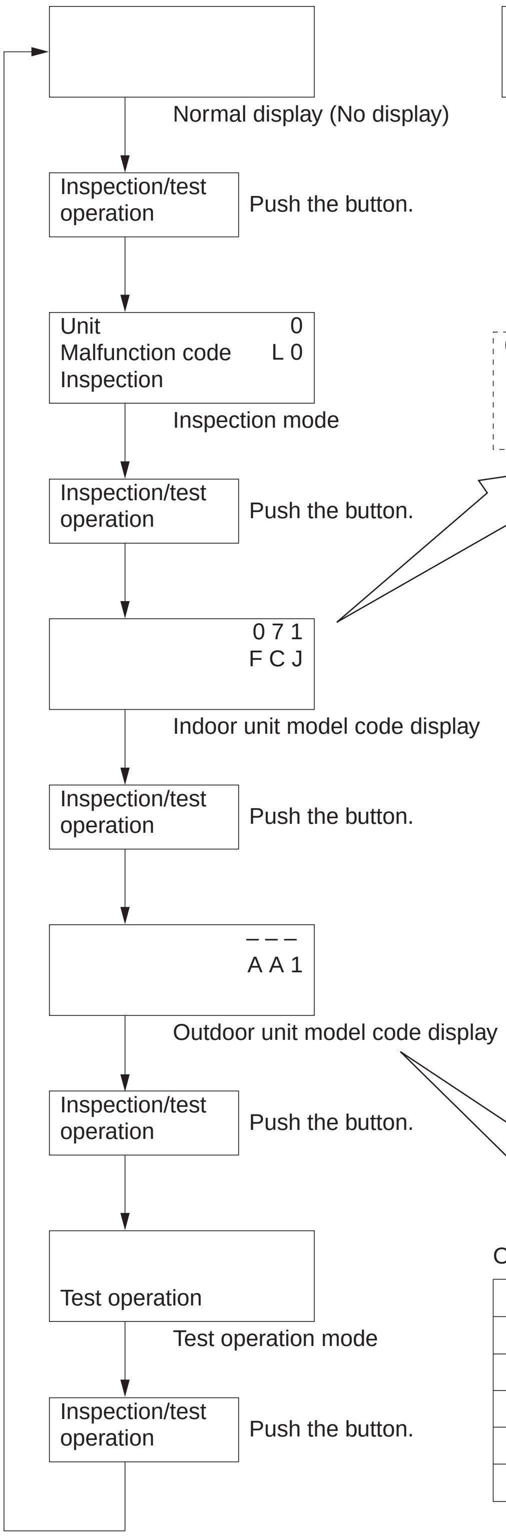

(SE007)




(SL027)


Normal status
Enters inspection mode from normal status when the INSPECTION/TEST button is pressed
1 Press INSPECTION/TEST button
If no button is pressed for 1 minuten equipment returns to normal status.
3 Press MODE selector button.
When MODE selector button is pressed or no button is pressed for 1 minute, equipment returns to normal status.
If no button is pressed for 1 minuten equipment returns to normal status.
5 Press MODE selector button.

# 1.4 Operation of The Remote Control's Inspection / Test Operation Button




Unit 0
Malfunction code L 0
Inspection

Malfunction code blinks when a malfunction occurs.

0 7 1... Capacity code
F... Indoor unit system code
C... Indoor unit type code
J... Progression code

Example of capacity code display

| Example model | Display |
|---|---|
| FXCQ25 | 028 |
| FXFQ63 | 071 |

Indoor unit system code

| Display | Product classification | System classification |
|---|---|---|
| 1 | VRV system | (VAV indoor unit) |
| 2 | VRV system | Outdoor air intake |
| F | VRV system | Standard indoor unit |

Indoor unit type code

| Display | Type | Model |
|---|---|---|
| A | Wall mounted | FXAQ |
| C | Double flow | FXCQ |
| E | Corner | FXKQ |
| F | Multi flow | FXFQ |
| H | Ceiling suspended | FXHQ |
| J | Built-in | FXSQ |
| L | Floor standing | FXLQ |
| P | Concealed ceiling duct | FXMQ |
| L | Concealed floor standing type | FXNQ |
| 6 | Multi flow 600×600 | FXZQ |

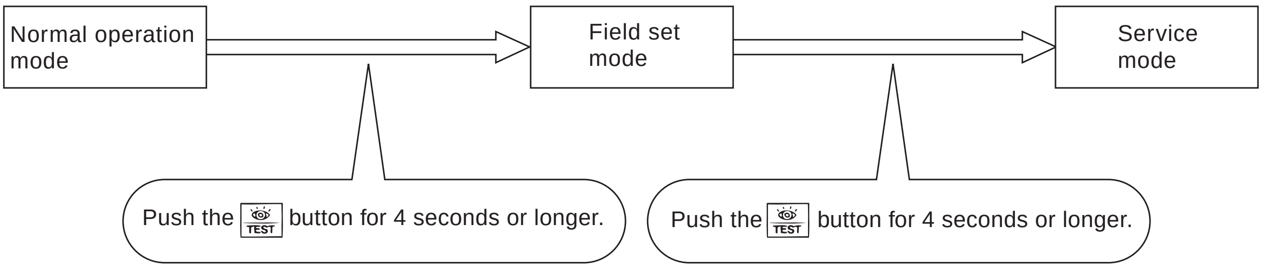
Outdoor model code

| Display | Type | Model |
|---|---|---|
| A A 1 | VRV System Inverter K Series | RSXYP |
| A A 3 | R407C VRV PLUS Series | RXYP |
| A 9 2 | VRV Heat Recovery Series | RSEYP |
| A A 5 | High COP type R407C L Series | RSXYP-L |
| A A A | VRV II | RXYQ-M |

(V2775)

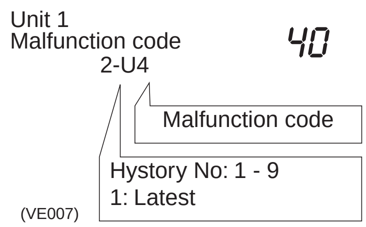
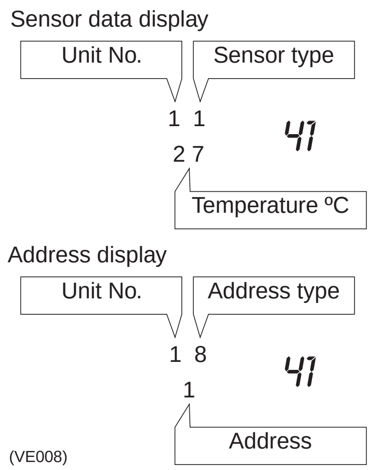
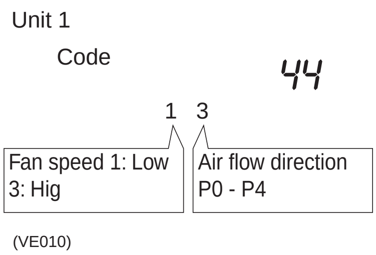
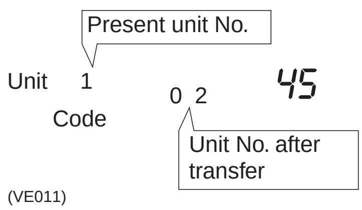
# 1.5 Remote Control Service Mode

**How to Enter the Service Mode**



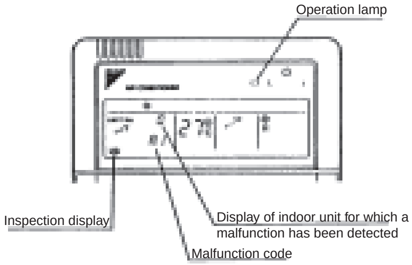

**Service Mode Operation Method**

1. **Select the mode No.**
Set the desired mode No. with the button.
(For infrared Remote Control, Mode 43 only can be set.)
2. **Select the unit No. (For group control only)**
Select the indoor unit No. to be set with the time mode . (For infrared Remote Control, button.)
3. **Make the settings required for each mode. (Modes 41, 44, 45)**
In case of Mode 44, 45, push button to be able to change setting before setting work. (LCD "code" blinks.)
For details, refer to the table in next page.
4. **Define the setting contents. (Modes 44, 45)**
Define by pushing the timer button.
After defining, LCD "code" changes blinking to ON.
5. **Return to the normal operation mode.**
Push the button one time.

| Mode No | Function | Contents and operation method | Remote Control display example |
|---|---|---|---|
| 40 | Malfunction hysteresis display | Display malfunction hysteresis.<br>The history No. can be changed with the button. |  |
| 41 | Display of sensor and address data | Display various types of data.<br>Select the data to be displayed with the button. Sensor data<br>0: Thermostat sensor in Remote Control.<br>1: Suction<br>2: Liquid pipe<br>3: Gas pipe<br><br>Address data<br>4: Indoor unit address<br>5: Outdoor unit address<br>6: BS unit address<br>7: Zone control address<br>8: Cool/heat group address<br>9: Demand / low noise address |  |
| 43 | Forced fan ON | Manually turn the fan ON by each unit. (When you want to search for the unit No.)<br>By selecting the unit No. with the button, you can turn the fan of each indoor unit on (forced ON) individually. |  |
| 44 | Individual setting | Set the fan speed and air flow direction by each unit<br>Select the unit No. with the time mode button. Set the fan speed with the button.<br>Set the air flow direction with the button. |  |
| 45 | Unit No. transfer | Transfer unit No.<br>Select the unit No. with the button.<br>Set the unit No. after transfer with the button. |  |
| 46 | This function is not used by VRV II R410A Heat Pump 50Hz. | | |
| 47 | | | |

## 1.6 Remote Control Self-Diagnosis Function

The Remote Control switches are equipped with a self diagnosis function so that more appropriate maintenance can be carried out. If a malfunction occurs during operation, the operation lamp, malfunction code and display of malfunctioning unit No. let you know the contents and location of the malfunction.
When there is a stop due to malfunction, the contents of the malfunction given below can be diagnosed by a combination of operation lamp, INSPECTION display of the liquid crystal display and display of malfunction code. It also lets you know the unit No. during group control.




(VL050)

| | Malfunction code | Operation lamp | Inspection display | Unit No. | Malfunction contents | Page Referred |
|---|---|---|---|---|---|---|
| Indoor Unit | A0 | ◑ | ◑ | ◑ | Error of external protection device | 156 |
| | A1 | ◑ | ◑ | ◑ | PC board defect, $E^2$ PROM defect | 157 |
| | A3 | ◑ | ◑ | ◑ | Malfunction of drain level control system (33H) | 158 |
| | A6 | ◑ | ◑ | ◑ | Fan motor (MF) lock, overload | 160 |
| | A7 | ○ | ● | ◑ | Malfunction of swing flap motor (MA) | 161 |
| | A9 | ◑ | ◑ | ◑ | Malfunction of moving part of electronic expansion valve (20E) | 163 |
| | AF | ○ | ● | ◑ | Drain level about limit | 165 |
| | AH | ○ | ● | ◑ | Malfunction of air filter maintenance | — |
| | AJ | ◑ | ◑ | ◑ | Malfunction of capacity setting | 166 |
| | C4 | ◑ | ◑ | ◑ | Malfunction of thermistor (R2T) for heat exchange (loose connection, disconnection, short circuit, failure) | 167 |
| | C5 | ◑ | ◑ | ◑ | Malfunction of thermistor (R3T) for gas pipes (loose connection, disconnection, short circuit, failure) | 168 |
| | C9 | ◑ | ◑ | ◑ | Malfunction of thermistor (R1T) for air inlet (loose connection, disconnection, short circuit, failure) | 169 |
| | CJ | ○ | ○ | ○ | Malfunction of thermostat sensor in remote control | 170 |
| Outdoor Unit | E1 | ◑ | ◑ | ◑ | PC board defect | 171 |
| | E3 | ◑ | ◑ | ◑ | Actuation of high pressure switch | 172 |
| | E4 | ◑ | ◑ | ◑ | Actuation of low pressure sensor | 173 |
| | E5 | ◑ | ◑ | ◑ | Compressor motor lock | 174 |
| | E6 | ◑ | ◑ | ◑ | Standard compressor lock or over current | 175 |
| | E7 | ◑ | ◑ | ◑ | Malfunction of outdoor unit fan motor | 176 |
| | E9 | ◑ | ◑ | ◑ | Malfunction of moving part of electronic expansion valve (Y1E~3E) | 178 |
| | F3 | ◑ | ◑ | ◑ | Abnormal discharge pipe temperature | 180 |
| | F6 | ◑ | ◑ | ◑ | Refrigerant overcharged | 181 |
| | H3 | ○ | ● | ◑ | Malfunction of High pressure switch | — |
| | H4 | ◑ | ◑ | ◑ | Actuation of Low pressure switch | — |
| | H7 | ◑ | ◑ | ◑ | Abnormal outdoor fan motor signal | 182 |
| | H9 | ◑ | ◑ | ◑ | Malfunction of thermistor (R1T) for outdoor air (loose connection, disconnection, short circuit, failure) | 183 |
| | J2 | ◑ | ◑ | ◑ | Current sensor malfunction | 184 |
| | J3 | ◑ | ◑ | ◑ | Malfunction of discharge pipe thermistor (R31~33T) (loose connection, disconnection, short circuit, failure) | 185 |
| | J5 | ◑ | ◑ | ◑ | Malfunction of thermistor (R2T) for suction pipe (loose connection, disconnection, short circuit, failure) | 186 |
| Outdoor Unit | J6 | ◑ | ◑ | ◑ | Malfunction of thermistor (R4T) for heat exchanger (loose connection, disconnection, short circuit, failure) | 187 |
| | J7 | ◑ | ◑ | ◑ | Malfunction of header thermistor | — |
| | J8 | ◑ | ◑ | ◑ | Malfunction of thermistor (R7T) for oil equalizing pipe. (loose connection, disconnection, short circuit, failure) | — |
| | J9 | ◑ | ◑ | ◑ | Malfunction of receiver gas pipe thermistor (R5T) | 188 |
| | JA | ◑ | ◑ | ◑ | Malfunction of discharge pipe pressure sensor | 189 |
| | JC | ◑ | ◑ | ◑ | Malfunction of suction pipe pressure sensor | 190 |
| | L0 | ◑ | ◑ | ◑ | Inverter system error | — |
| | L4 | ◑ | ◑ | ◑ | Malfunction of inverter radiating fin temperature rise | 191 |
| | L5 | ◑ | ◑ | ◑ | Inverter compressor motor grounding, short circuit | 192 |
| | L6 | ◑ | ◑ | ◑ | Compressor motor coil grounding on short circuit | — |
| | L8 | ◑ | ◑ | ◑ | Inverter current abnormal | 193 |
| | L9 | ◑ | ◑ | ◑ | Inverter start up error | 194 |

| | Malfunction code | Operation lamp | Inspection display | Unit No. | Malfunction contents | Page Referred |
|---|---|---|---|---|---|---|
| Outdoor Unit | LA | ◑ | ◑ | ◑ | Malfunction of power unit | — |
| | LC | ◑ | ◑ | ◑ | Malfunction of transmission between inverter and control PC board | 195 |
| | P1 | ◑ | ◑ | ◑ | Inverter over-ripple protection | 197 |
| | P4 | ◑ | ◑ | ◑ | Malfunction of inverter radiating fin temperature rise sensor | 198 |
| System | U0 | ○ | ● | ◑ | Low pressure drop due to refrigerant shortage or electronic expansion valve failure | 199 |
| | U1 | ◑ | ◑ | ◑ | Reverse phase / open phase | 200 |
| | U2 | ◑ | ◑ | ◑ | Power supply insufficient or instantaneous failure | 201 |
| | U3 | ◑ | ◑ | ◑ | Check operation is not conducted. | 203 |
| | U4 | ◑ | ◑ | ◑ | Malfunction of transmission between indoor and outdoor units | 204 |
| | U5 | ◑ | ◑ | ◑ | Malfunction of transmission between remote control and indoor unit | 206 |
| | U5 | ● | ○ | ● | Failure of remote control PC board or setting during control by remote control | 206 |
| | U7 | ◑ | ◑ | ◑ | Malfunction of transmission between outdoor units | 207 |
| | U8 | ◑ | ◑ | ● | Malfunction of transmission between master and slave remote controls (malfunction of slave remote control) | 209 |
| | U9 | ◑ | ◑ | ◑ | Malfunction of transmission between indoor unit and outdoor unit in the same system | 210 |
| | UA | ◑ | ◑ | ◑ | Excessive number of indoor units etc | 212 |
| | UC | ○ | ○ | ○ | Address duplication of central remote control | 213 |
| | UE | ◑ | ◑ | ◑ | Malfunction of transmission between central remote control and indoor unit | 214<br>218<br>224 |
| | UF | ◑ | ◑ | ◑ | Refrigerant system not set, incompatible wiring / piping | 216 |
| | UH | ◑ | ◑ | ◑ | Malfunction of system, refrigerant system address undefined | 217 |
| Centralized Control and Schedule Timer | M1 | ○ or ● | ◑ | ◑ | PC board defect | 219<br>226 |
| | M8 | ○ or ● | ◑ | ◑ | Malfunction of transmission between optional controllers for centralized control | 220<br>227 |
| | MA | ○ or ● | ◑ | ◑ | Improper combination of optional controllers for centralized control | 221<br>228 |
| | MC | ○ or ● | ◑ | ◑ | Address duplication, improper setting | 223<br>230 |
| Heat Reclaim Ventilation | 64 | ○ | ● | ◑ | Indoor unit's air thermistor error | — |
| | 65 | ○ | ● | ◑ | Outside air thermistor error | — |
| | 68 | ○ | ● | ◑ | | — |
| | 6A | ○ | ● | ◑ | Damper system alarm | — |
| | 6A | ◑ | ◑ | ◑ | Damper system + thermistor error | — |
| | 6F | ○ | ● | ◑ | Malfunction of simple remote control | — |
| | 6H | ○ | ● | ◑ | Malfunction of door switch or connector | — |
| | 94 | ◑ | ◑ | ◑ | Internal transmission error | — |

The system operates for malfunction codes indicated in black squares, however, be sure to check and repair.

## Malfunction code indication by outdoor unit PCB

To enter the monitor mode, push the MODE button (BS1) when in “Setting mode 1”.

* Refer P.124 for Monitor mode.

**<Selection of setting item>**

Push the SET button (BS2) and set the LED display to a setting item.

* Refer P.124 for Monitor mode.

**<Confirmation of malfunction 1>**

Push the RETURN button (BS3) once to display "First digit" of malfunction code.

**<Confirmation of malfunction 2>**

Push the SET button (BS2) once to display "Second digit" of malfunction code.

**<Confirmation of malfunction 3>**

Push the SET button (BS2) once to display "master or slave1 or slave2" and "malfunction location".

Detail description on next page.

Push the RETURN button (BS3) and switches to the initial status of “Monitor mode”.

∗ Push the MODE button (BS1) and returns to “Setting mode 1”.

| Contents of malfunction | | Malfunction code |
|---|---|---|
| Abnormal discharge pressure | HPS activated | E3 |
| Abnormal suction pressure | Abnormal Pe | E4 |
| Compressor lock | Detection of INV compressor lock | E5 |
| Activation of OC | Detection of STD1 compressor lock | E6 |
| | Detection of STD2 compressor lock | |
| Over load, over current, abnormal lock of outdoor unit fan motor | Instantaneous over current of DC fan motor | E7 |
| | Detection of DC fan motor lock | |
| Malfunction of electronic expansion valve | EV1 | E9 |
| | EV2 | |
| | EV3 | |
| Abnormal position signal of outdoor unit fan motor | Abnormal position signal of DC fan motor | H7 |
| Faulty sensor of outdoor air temperature | Faulty Ta sensor | H9 |
| Faulty sensor of heat storage unit | | HC |
| Abnormality in water system of heat storage unit | | HJ |
| Transmission error between heat storage unit and controller | | HF |
| Abnormal discharge pipe temperature | Abnormal Td | F3 |
| Abnormal heat exchanger temperature | Refrigerant over charge | F6 |
| Faulty current sensor | Faulty CT1 sensor | J2 |
| | Faulty CT2 sensor | |
| Faulty sensor of discharge pipe temperature | Faulty Tdi sensor | J3 |
| | Faulty Tds1 sensor | |
| | Faulty Tds2 sensor | |
| Faulty sensor of suction pipe temperature | Faulty Ts sensor | J5 |
| Faulty sensor of heat exchanger temperature | Faulty Tb sensor | J6 |
| Faulty sensor of receiver temperature | Faulty Tl sensor | J7 |
| Faulty sensor of oil pressure equalizing pipe temperature | Faulty To sensor | J8 |
| Faulty sensor of subcool heat exchanger temperature | Faulty Tsh sensor | J9 |
| Faulty sensor of discharge pressure | Faulty Pc sensor | JA |
| Faulty sensor of suction pressure | Faulty Pe sensor | JC |
| Inverter radiation fin temperature rising | Over heating of inverter radiation fin temperature | L4 |
| DC output over current | Inverter instantaneous over current | L5 |
| Electronic thermal switch | Electronic thermal switch 1 | L8 |
| | Electronic thermal switch 2 | |
| | Out-of-step | |
| | Speed down after startup | |
| | Lightening detection | |
| Stall prevention (Limit time) | Stall prevention (Current increasing) | L9 |
| | Stall prevention (Faulty startup) | |
| | Abnormal wave form in startup | |
| | Out-of-step | |
| Transmission error between inverter and outdoor unit | Inverter transmission error | LC |
| Open phase/Power supply imbalance | Imbalance of inverter power supply voltage | P1 |
| Faulty temperature sensor inside switch box | Faulty thermistor of inverter box | P3 |
| Faulty temperature sensor of inverter radiation fin | Faulty thermistor of inverter fin | P4 |
| Incorrect combination of inverter and fan driver | Incorrect combination of inverter and fan driver | PJ |
| Gas shortage | Gas shortage alarm | U0 |
| Reverse phase | Reverse phase error | U1 |
| Abnormal power supply voltage | Insufficient inverter voltage | U2 |
| | Inverter open phase (phase T) | |
| | Charging error of capacitor in inverter main circuit | |
| No implementation of test-run | | U3 |
| Transmission error between indoor and outdoor unit | I/O transmission error | U4 |
| Transmission error between outdoor units, transmission error between thermal storage units, duplication of IC address | O/O transmission error | U7 |
| Transmission error of other system | Indoor unit system malfunction in other system or other unit of own system | U9 |
| Erroneous on-site setting | Abnormal connection with excessive number of indoor units | UA |
| | Conflict of refrigerant type in indoor units | |
| Faulty system function | Incorrect wiring (Auto address error) | UH |
| Transmission error in accessory devices, conflict in wiring and piping, no setting for system | Malfunction of multi level converter, abnormality in conflict check | UJ<br>UF |

| Malfunction code | Confirmation of malfunction 1 | | | | | | | Confirmation of malfunction 2 | | | | | | | Confirmation of malfunction 3 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LED1 | LED2 | LED3 | LED4 | LED5 | LED6 | LED7 | LED1 | LED2 | LED3 | LED4 | LED5 | LED6 | LED7 | LED1 | LED2 | LED3 | LED4 | LED5 | LED6 | LED7 |
| E3 | ◎ | ● | ○ | ● | ● | ◎ | ◎ | ◎ | ○ | ● | ● | ● | ◎ | ◎ | ◎ | ○ | ○ | | | ● | ● |
| E4 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ● | ● | ◎ | ○ | ○ | | | ● | ● |
| E5 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ● | ◎ | ◎ | ○ | ○ | | | ● | ● |
| E6 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ◎ | ● | ◎ | ○ | ○ | | | ● | ◎ |
| | | | | | | | | ◎ | ○ | ● | ● | ◎ | ◎ | ● | ◎ | ○ | ○ | | | ◎ | ● |
| E7 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ◎ | ◎ | ◎ | ○ | ○ | | | ● | ◎ |
| E9 | | | | | | | | ◎ | ○ | ● | ◎ | ● | ● | ◎ | ◎ | ○ | ○ | | | ● | ◎ |
| | | | | | | | | | | | | | | | ◎ | ○ | ○ | | | ◎ | ● |
| | | | | | | | | | | | | | | | ◎ | ○ | ○ | | | ◎ | ◎ |
| H7 | ◎ | ● | ○ | ● | ◎ | ● | ● | ◎ | ○ | ● | ● | ◎ | ◎ | ◎ | ◎ | ○ | ○ | | | ● | ◎ |
| H9 | | | | | | | | ◎ | ○ | ● | ◎ | ● | ● | ◎ | ◎ | ○ | ○ | | | ● | ● |
| HC | | | | | | | | ◎ | ○ | ● | ◎ | ◎ | ● | ● | ◎ | ○ | ○ | | | ● | ● |
| HJ | | | | | | | | ◎ | ○ | ● | ◎ | ◎ | ● | ◎ | ◎ | ○ | ○ | | | ● | ● |
| HF | | | | | | | | ◎ | ○ | ● | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ○ | | | ● | ● |
| F3 | ◎ | ● | ○ | ● | ◎ | ● | ◎ | ◎ | ○ | ● | ● | ● | ◎ | ◎ | ◎ | ○ | ○ | | | ● | ● |
| F6 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ◎ | ● | ◎ | ○ | ○ | | | ● | ● |
| J2 | ◎ | ● | ○ | ● | ◎ | ◎ | ● | ◎ | ○ | ● | ● | ● | ◎ | ● | ◎ | ○ | ○ | | | ● | ◎ |
| | | | | | | | | | | | | | | | ◎ | ○ | ○ | | | ◎ | ● |
| J3 | | | | | | | | ◎ | ○ | ● | ● | ● | ◎ | ◎ | ◎ | ○ | ○ | | | ● | ◎ |
| | | | | | | | | | | | | | | | ◎ | ○ | ○ | | | ◎ | ● |
| | | | | | | | | | | | | | | | ◎ | ○ | ○ | | | ◎ | ◎ |
| J5 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ● | ◎ | ◎ | ○ | ○ | | | ● | ● |
| J6 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ◎ | ● | ◎ | ○ | ○ | | | ● | ● |
| J7 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ◎ | ◎ | ◎ | ○ | ○ | | | ● | ● |
| J8 | | | | | | | | ◎ | ○ | ● | ◎ | ● | ● | ● | ◎ | ○ | ○ | | | ● | ● |
| J9 | | | | | | | | ◎ | ○ | ● | ◎ | ● | ● | ◎ | ◎ | ○ | ○ | | | ● | ● |
| JA | | | | | | | | ◎ | ○ | ● | ◎ | ● | ◎ | ● | ◎ | ○ | ○ | | | ● | ● |
| JC | | | | | | | | ◎ | ○ | ● | ◎ | ◎ | ● | ● | ◎ | ○ | ○ | | | ● | ● |
| L4 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ● | ● | ◎ | ○ | ○ | | | ● | ● |
| L5 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ● | ◎ | ◎ | ○ | ○ | | | ● | ● |
| L8 | | | | | | | | ◎ | ○ | ● | ◎ | ● | ● | ● | ◎ | ○ | ○ | | | ● | ● |
| L9 | | | | | | | | ◎ | ○ | ● | ◎ | ● | ● | ◎ | ◎ | ○ | ○ | | | ● | ● |
| LC | | | | | | | | ◎ | ○ | ● | ◎ | ◎ | ● | ● | ◎ | ○ | ○ | | | ● | ● |
| P1 | ◎ | ● | ○ | ◎ | ● | ● | ● | ◎ | ○ | ● | ● | ● | ● | ◎ | ◎ | ○ | ○ | | | ● | ● |
| P3 | | | | | | | | ◎ | ○ | ● | ● | ● | ◎ | ◎ | ◎ | ○ | ○ | | | ● | ● |
| P4 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ● | ● | ◎ | ○ | ○ | | | ● | ● |
| PJ | | | | | | | | ◎ | ○ | ● | ◎ | ◎ | ● | ◎ | ◎ | ○ | ○ | | | ● | ● |
| U0 | ◎ | ● | ○ | ◎ | ● | ● | ◎ | ◎ | ○ | ● | ● | ● | ● | ● | ◎ | ○ | ○ | | | ● | ● |
| U1 | | | | | | | | ◎ | ○ | ● | ● | ● | ● | ◎ | ◎ | ○ | ○ | | | ● | ● |
| U2 | | | | | | | | ◎ | ○ | ● | ● | ● | ◎ | ● | ◎ | ○ | ○ | | | ● | ● |
| U3 | | | | | | | | ◎ | ○ | ● | ● | ● | ◎ | ◎ | ◎ | ○ | ○ | | | ● | ● |
| U4 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ● | ● | ◎ | ○ | ○ | | | ● | ● |
| U7 | | | | | | | | ◎ | ○ | ● | ● | ◎ | ◎ | ◎ | ◎ | ○ | ○ | | | ● | ● |
| U9 | | | | | | | | ◎ | ○ | ● | ◎ | ● | ● | ◎ | ◎ | ○ | ○ | | | ● | ● |
| UA | | | | | | | | ◎ | ○ | ● | ◎ | ● | ◎ | ● | ◎ | ○ | ○ | | | ● | ● |
| UH | | | | | | | | ◎ | ○ | ● | ◎ | ● | ◎ | ◎ | ◎ | ○ | ○ | | | ● | ● |
| UJ | | | | | | | | ◎ | ○ | ● | ◎ | ◎ | ● | ◎ | ◎ | ○ | ○ | | | ● | ● |
| UF | | | | | | | | ◎ | ○ | ● | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ○ | | | ● | ● |

○ : ON
◎ : Blink
● : OFF

LED4–LED7 of confirmation of malfunction 1: Malfunction code 1st digit display section

LED4–LED7 of confirmation of malfunction 2: Malfunction code 2nd digit display section

LED4–LED7 of confirmation of malfunction 3: Malfunction location

| | LED6 | LED7 |
|---|---|---|
| Master | ● | ● |
| Slave 1 | ● | ◎ |
| Slave 2 | ◎ | ● |

# 2. Troubleshooting by Indication on the Remote Control

## 2.1 "A0" Indoor Unit: Error of External Protection Device

**Remote Control Display**

A0

**Applicable Models**

All indoor unit models

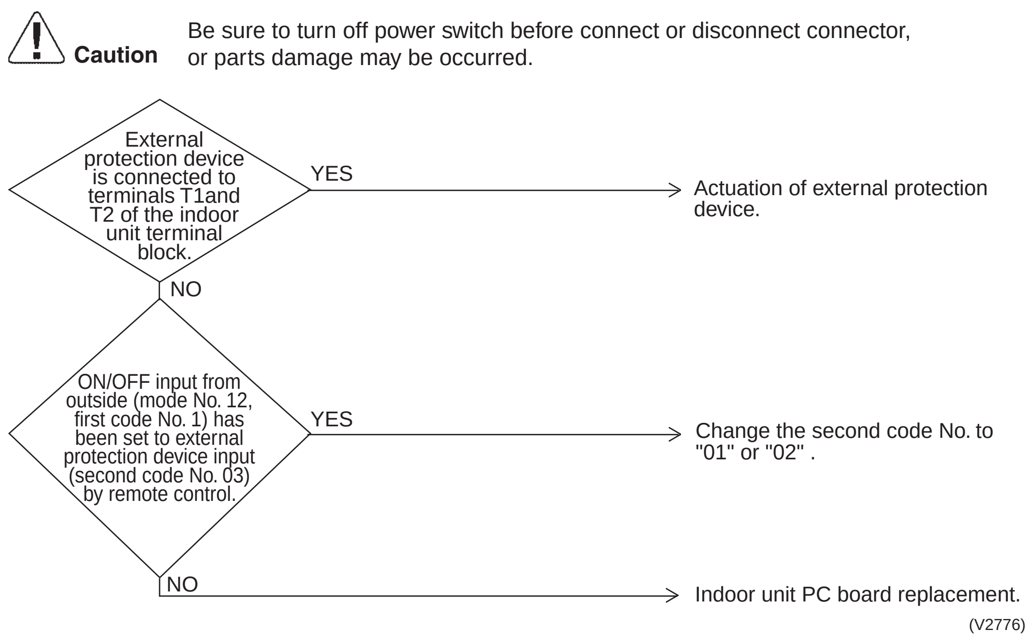
**Method of Malfunction Detection**

**Malfunction Decision Conditions**

**Supposed Causes**

- Actuation of external protection device
- Improper field set
- Defect of indoor unit PC board

**Troubleshooting**



## 2.2 "A1" Indoor Unit: PC Board Defect

**Remote Control Display**

A1

**Applicable Models**

All indoor unit models

**Method of Malfunction Detection**

Check data from $E^2$PROM.

**Malfunction Decision Conditions**

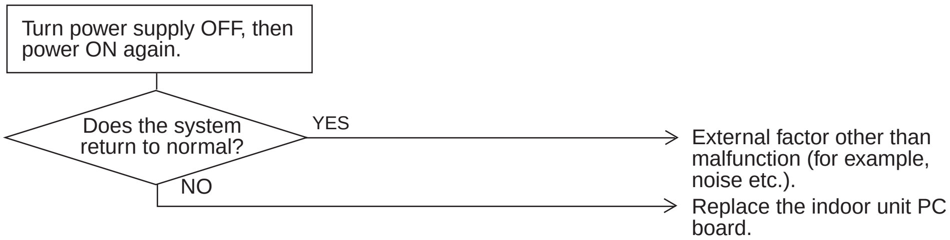
When data could not be correctly received from the $E^2$PROM
$E^2$PROM : Type of nonvolatile memory. Maintains memory contents even when the power supply is turned off.

**Supposed Causes**

■ Defect of indoor unit PC board

**Troubleshooting**

⚠ **Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



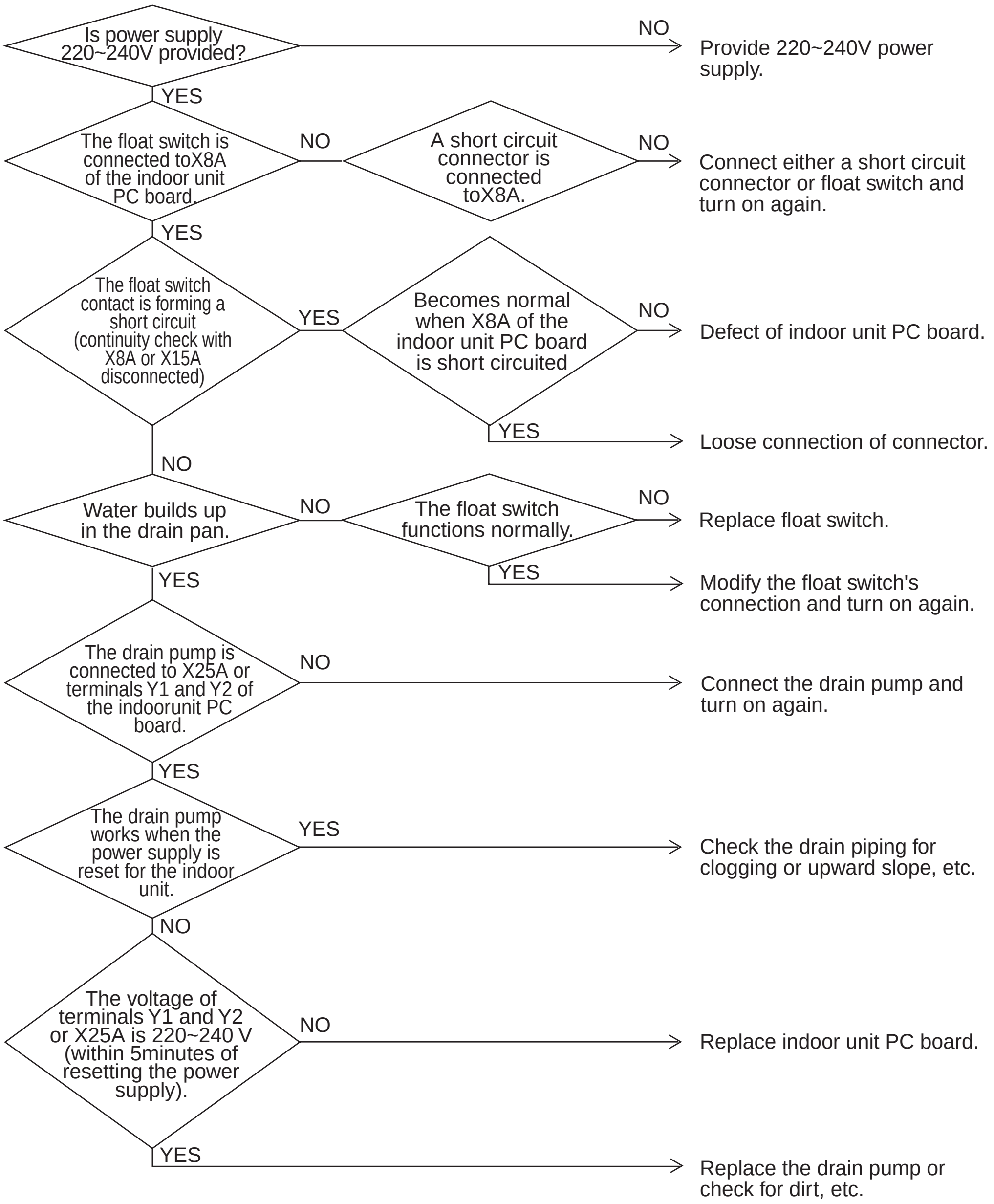

(V2777)

## 2.3 "A3" Indoor Unit: Malfunction of Drain Level Control System (33H)

| | |
|---|---|
| **Remote Control Display** | A3 |
| **Applicable Models** | FXCQ, FXFQ, FXSQ, FXAQ, FXKQ, FXHQ (Option) , FXMQ (Option) |
| **Method of Malfunction Detection** | By float switch OFF detection |
| **Malfunction Decision Conditions** | When rise of water level is not a condition and the float switch goes OFF. |
| **Supposed Causes** | ■ 220~240V power supply is not provided<br>■ Defect of float switch or short circuit connector<br>■ Defect of drain pump<br>■ Drain clogging, upward slope, etc.<br>■ Defect of indoor unit PC board<br>■ Loose connection of connector |

## Troubleshooting

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2778)

## 2.4 "A6" Indoor Unit: Fan Motor (M1F) Lock, Overload

**Remote Control Display**

A6

**Applicable Models**

All indoor units

**Method of Malfunction Detection**

Detection by failure of signal for detecting number of turns to come from the fan motor

**Malfunction Decision Conditions**

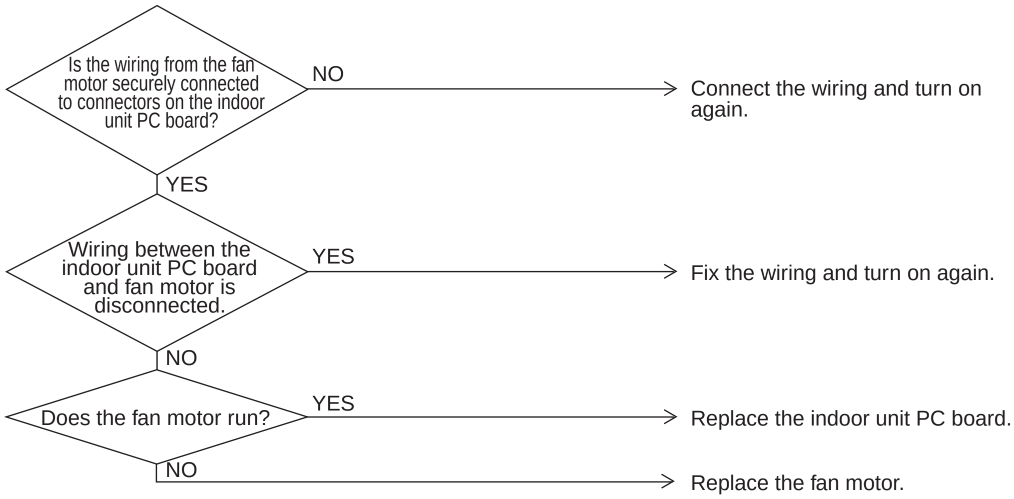
When number of turns can't be detected even when output voltage to the fan is maximum

**Supposed Causes**

- Fan motor lock
- Disconnected or faulty wiring between fan motor and PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



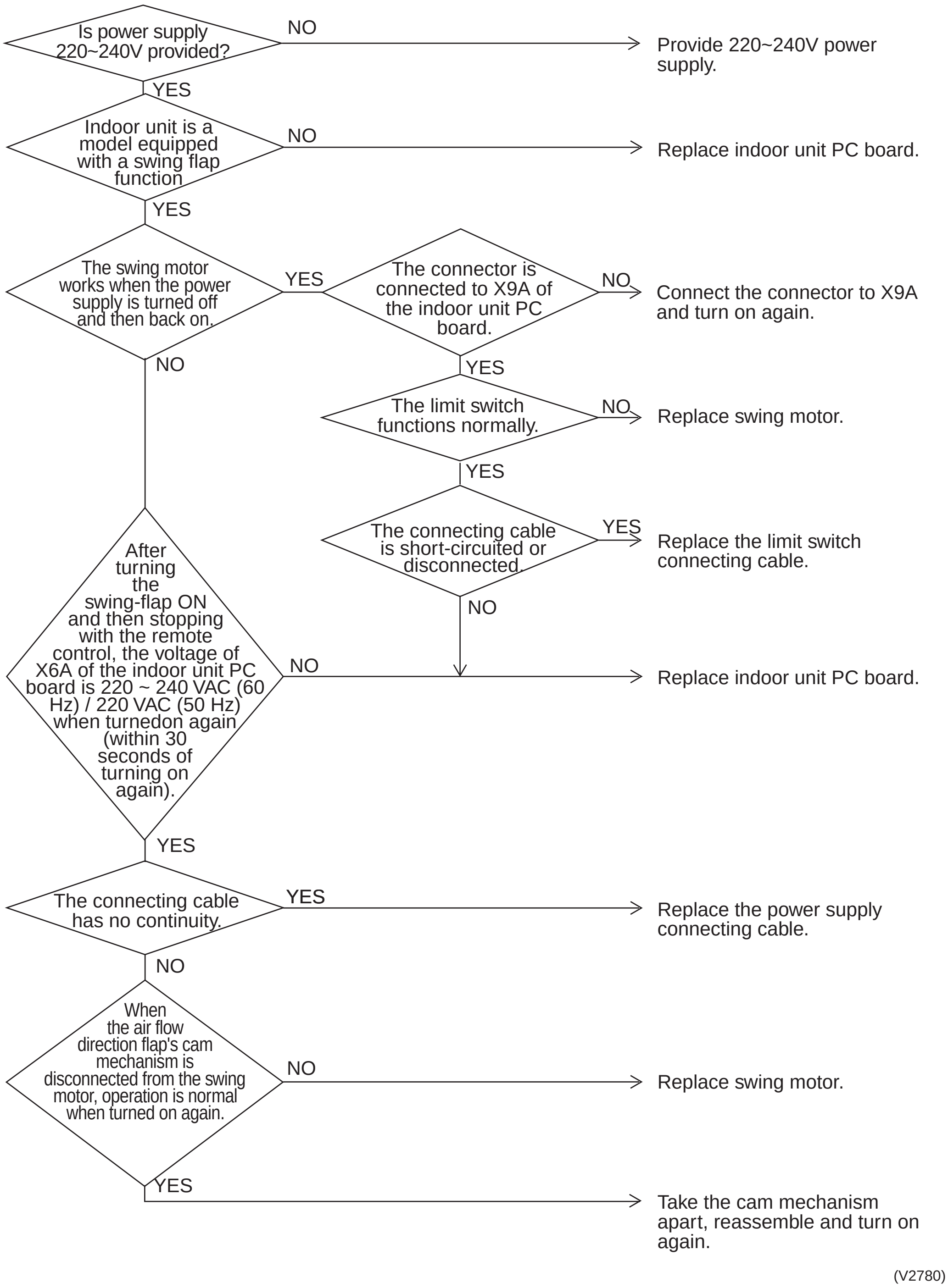

(V2779)

## 2.5 “A7” Indoor Unit: Malfunction of Swing Flap Motor (MA)

| | |
|---|---|
| **Remote Control Display** | A7 |
| **Applicable Models** | FXCQ, FXAQ, FXFQ, FXHQ, FXKQ |
| **Method of Malfunction Detection** | Utilizes ON/OFF of the limit switch when the motor turns. |
| **Malfunction Decision Conditions** | When ON/OFF of the microswitch for positioning cannot be reversed even though the swing flap motor is energized for a specified amount of time (about 30 seconds). |
| **Supposed Causes** | ■ Defect of swing motor<br>■ Defect of connection cable (power supply and limit switch)<br>■ Defect of air flow direction adjusting flap-cam<br>■ Defect of indoor unit PC board |

## Troubleshooting

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



# 2.6 "A9" Indoor Unit: Malfunction of Moving Part of Electronic Expansion Valve (20E)

**Remote Control Display**

A9

**Applicable Models**

All indoor unit models

**Method of Malfunction Detection**

Detection by failure of signal for detecting number of turns to come from the fan motor

**Malfunction Decision Conditions**

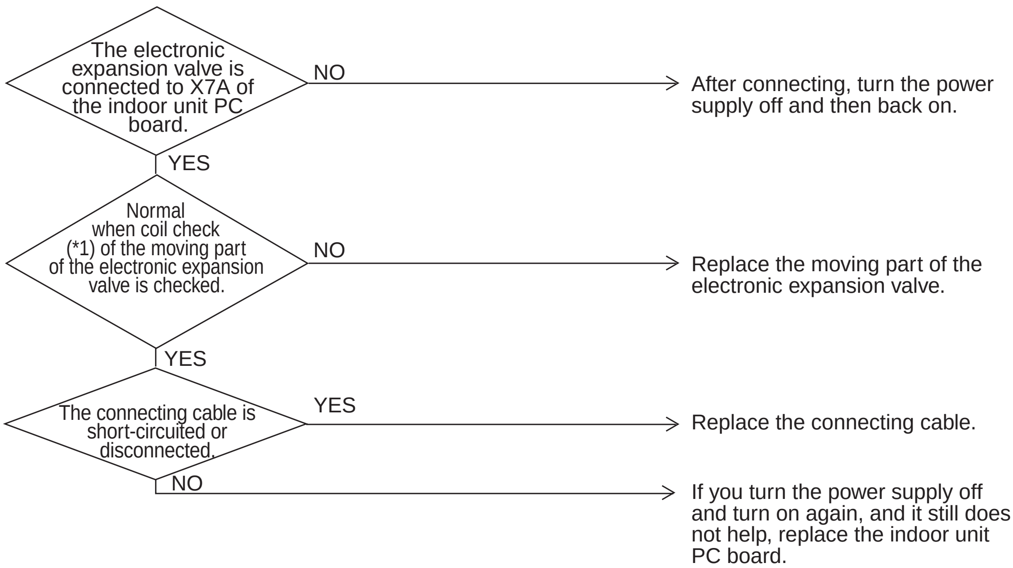
When number of turns can't be detected even when output voltage to the fan is maximum

**Supposed Causes**

- Malfunction of moving part of electronic expansion valve
- Defect of indoor unit PC board
- Defect of connecting cable

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2781)

*1: Coil check method for the moving part of the electronic expansion valve
Discount the electronic expansion valve from the PC board and check the continuity between the connector pins.

(Normal)

| Pin No. | 1. White | 2. Yellow | 3. Orange | 4. Blue | 5. Red | 6. Brown |
|---|---|---|---|---|---|---|
| 1. White | | x | ○ Approx. 300Ω | x | ○ Approx. 150Ω | x |
| 2. Yellow | | | x | ○ Approx. 300Ω | x | ○ Approx. 150Ω |
| 3. Orange | | | | x | ○ Approx. 150Ω | x |
| 4. Blue | | | | | x | ○ Approx. 150Ω |
| 5. Red | | | | | | x |
| 6. Brown | | | | | | |

○: Continuity
x: No continuity

# 2.7 "AF" Indoor Unit: Drain Level above Limit

**Remote Control Display**

AF

**Applicable Models**

FXCQ, FXFQ, FXSQ, FXKQ, FXMQ

**Method of Malfunction Detection**

Water leakage is detected based on float switch ON/OFF operation while the compressor is in non-operation.

**Malfunction Decision Conditions**

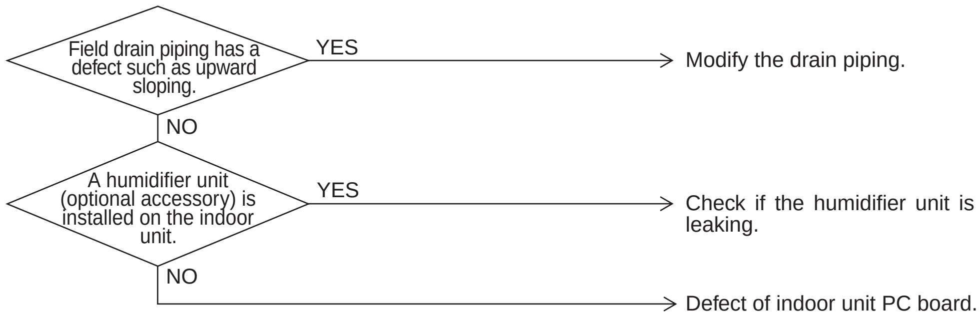
When the float switch changes from ON to OFF while the compressor is in non-operation.

**Supposed Causes**

- Humidifier unit (optional accessory) leaking
- Defect of drain pipe (upward slope, etc.)
- Defect of indoor unit PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2782)

## 2.8 "AJ" Indoor Unit: Malfunction of Capacity Determination Device

**Remote Control display**

AJ

**Applicable Models**

All indoor unit models

**Method of Malfunction Detection**

Capacity is determined according to resistance of the capacity setting adapter and the memory inside the IC memory on the indoor unit PC board, and whether the value is normal or abnormal is determined.

**Malfunction Decision Conditions**

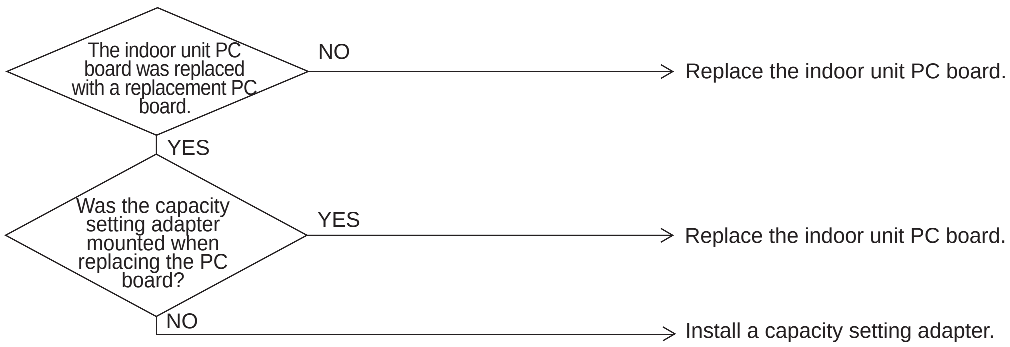
Operation and:
1. When the capacity code is not contained in the PC board's memory, and the capacity setting adapter is not connected.
2. When a capacity that doesn't exist for that unit is set.

**Supposed Causes**

- You have forgotten to install the capacity setting adapter.
- Defect of indoor unit PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2783)

# 2.9 "C4" Indoor Unit: Malfunction of Thermistor (R2T) for Heat Exchanger

**Remote Control Display**

C4

**Applicable Models**

All indoor unit models

**Method of Malfunction Detection**

Malfunction detection is carried out by temperature detected by heat exchanger thermistor.

**Malfunction Decision Conditions**

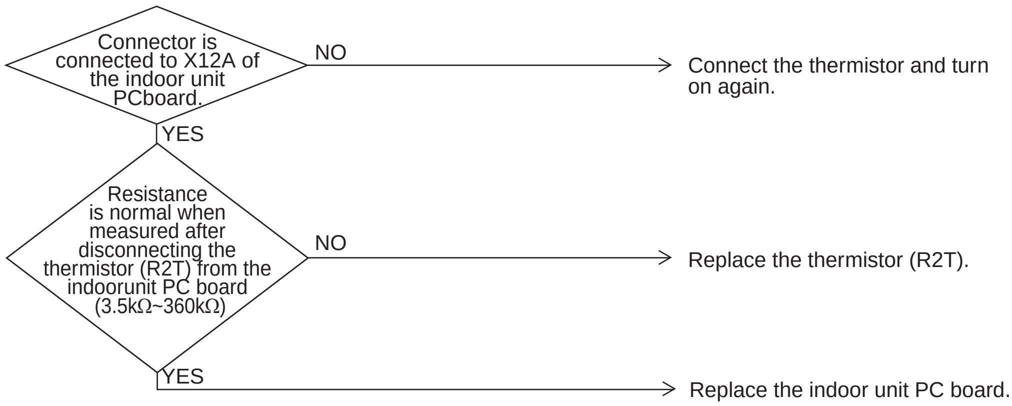
When the heat exchanger thermistor becomes disconnected or shorted while the unit is running.

**Supposed Causes**

- Defect of thermistor (R2T) for liquid pipe
- Defect of indoor unit PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2784)

*2: Refer to thermistor resistance / temperature characteristics table on P274.

# 2.10 "C5" Indoor Unit: Malfunction of Thermistor (R3T) for Gas Pipes

**Remote Control Display**

C5

**Applicable Models**

All indoor unit models

**Method of Malfunction Detection**

Malfunction detection is carried out by temperature detected by gas pipe thermistor.

**Malfunction Decision Conditions**

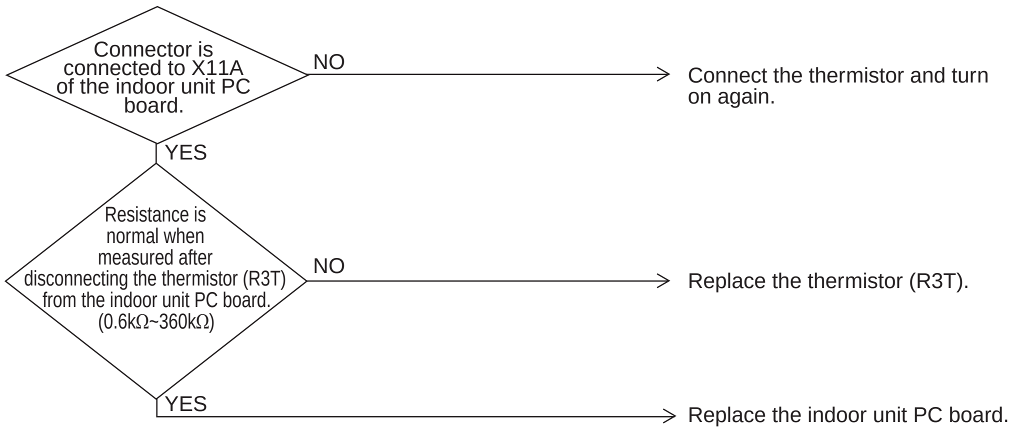
When the gas pipe thermistor becomes disconnected or shorted while the unit is running.

**Supposed Causes**

- Defect of indoor unit thermistor (R3T) for gas pipe
- Defect of indoor unit PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2785)

*2: Refer to thermistor resistance / temperature characteristics table on P274.

# 2.11 "C9" Indoor Unit: Malfunction of Thermistor (R1T) for Suction Air

**Remote Control Display**

C9

**Applicable Models**

All indoor unit models

**Method of Malfunction Detection**

Malfunction detection is carried out by temperature detected by suction air temperature thermistor.

**Malfunction Decision Conditions**

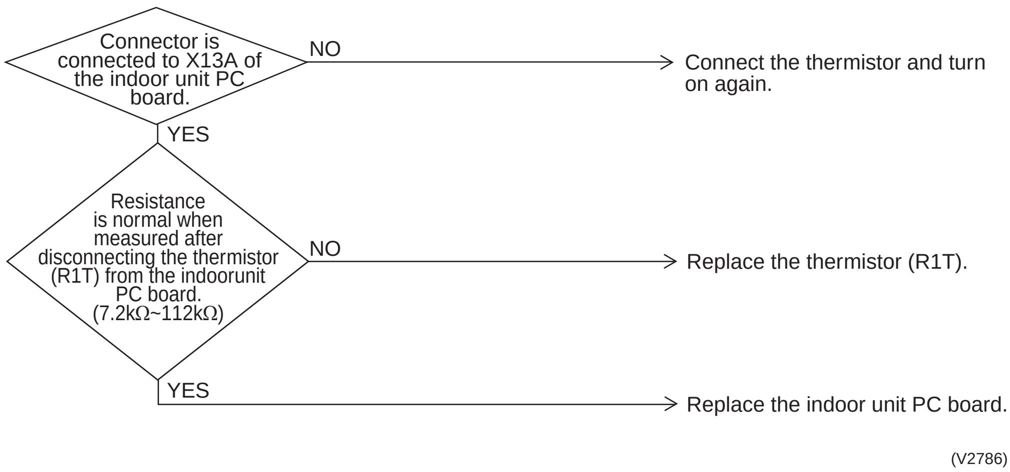
When the suction air temperature thermistor becomes disconnected or shorted while the unit is running.

**Supposed Causes**

- Defect of indoor unit thermistor (R1T) for air inlet
- Defect of indoor unit PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




*2: Refer to thermistor resistance / temperature characteristics table on P274.

## 2.12 “CJ” Indoor Unit: Malfunction of Thermostat Sensor in Remote Control

**Remote Control Display**

CJ

**Applicable Models**

All indoor unit models

**Method of Malfunction Detection**

Malfunction detection is carried out by temperature detected by Remote Control air temperature thermistor. (Note1)

**Malfunction Decision Conditions**

When the Remote Control air temperature thermistor becomes disconnected or shorted while the unit is running.

**Supposed Causes**

- Defect of Remote Control thermistor
- Defect of Remote Control PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2787)

**Note:** In case of Remote Control thermistor malfunction, unit is still operable by suction air thermistor on indoor unit.

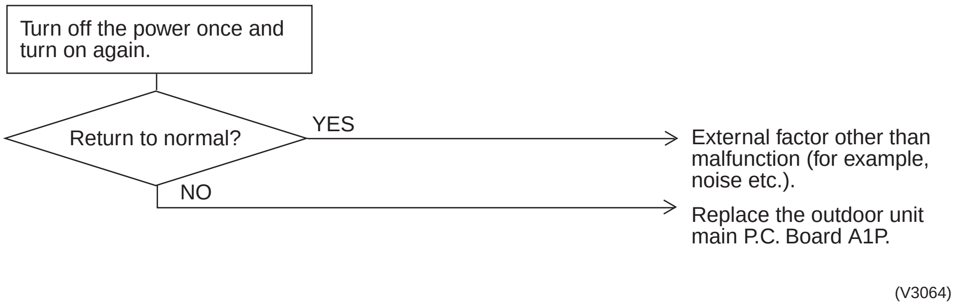
*2: Refer to thermistor resistance / temperature characteristics table on P274.

## 2.13 "E1" Outdoor Unit: PC Board Defect

| | |
|---|---|
| **Remote Control Display** | E1 |
| **Applicable Models** | RXYQ5~48M |
| **Method of Malfunction Detection** | Check data from $E^2$PROM |
| **Malfunction Decision Conditions** | When data could not be correctly received from the $E^2$PROM<br>$E^2$PROM : Type of nonvolatile memory. Maintains memory contents even when the power supply is turned off. |
| **Supposed Causes** | ■ Defect of outdoor unit PC board (A1P) |

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



## 2.14 “E3” Outdoor Unit: Actuation of High Pressure Switch

**Remote Control Display**

E3

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Abnormality is detected when the contact of the high pressure protection switch opens.

**Malfunction Decision Conditions**

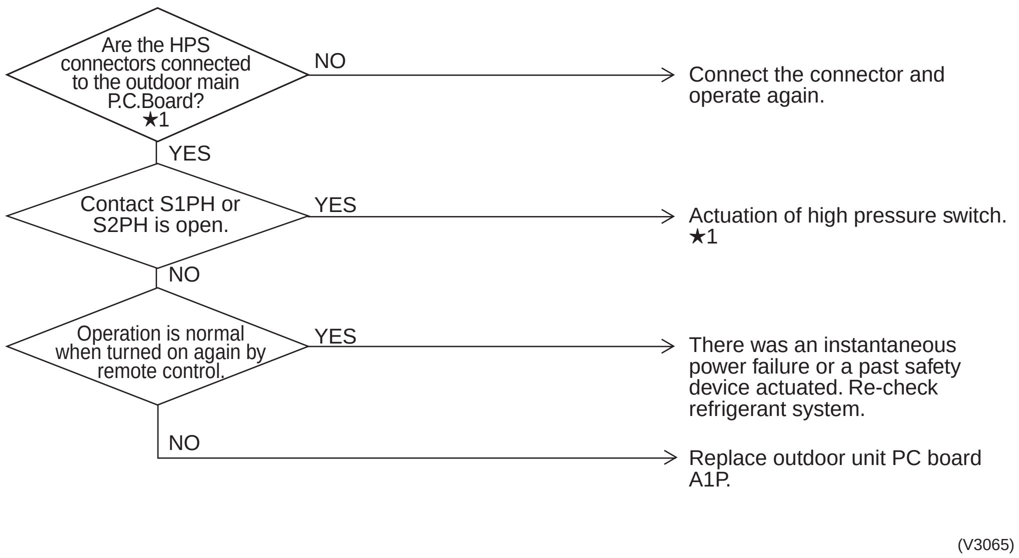
Error is generated when the HPS activation count reaches the number specific to the operation mode.

**Supposed Causes**

- Actuation of outdoor unit high pressure switch
- Defect of High pressure switch
- Defect of outdoor unit PC board
- Instantaneous power failure
- Faulty high pressure sensor

**Troubleshooting**

⚠ **Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




★1: Actuation of high pressure switch (HPS)
- The outdoor unit PC board’s connector is disconnected.
- Is the outdoor unit heat exchanger dirty?
- Defect of outdoor fan
- Is the refrigerant over-charged?
- Faulty high pressure sensor

# 2.15 "E4" Outdoor Unit: Actuation of Low Pressure Sensor

**Remote Control Display** E4

**Applicable Models** RXYQ5~48M

**Method of Malfunction Detection**

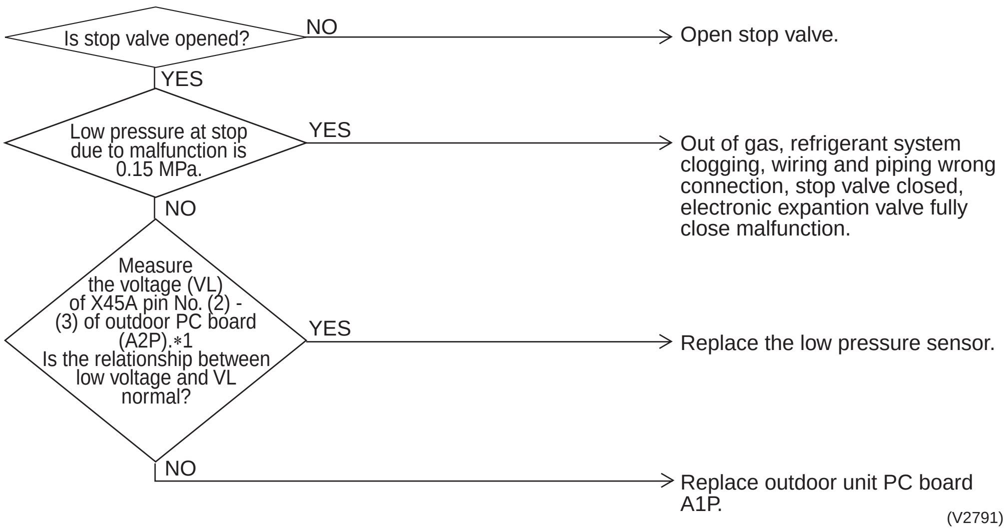
**Malfunction Decision Conditions** Error is generated when the low pressure is dropped under specific pressure.

**Supposed Causes**

- Abnormal drop of low pressure (Lower than 0.15MPa)
- Defect of low pressure sensor
- Defect of outdoor unit PC board
- Stop valve is not opened.

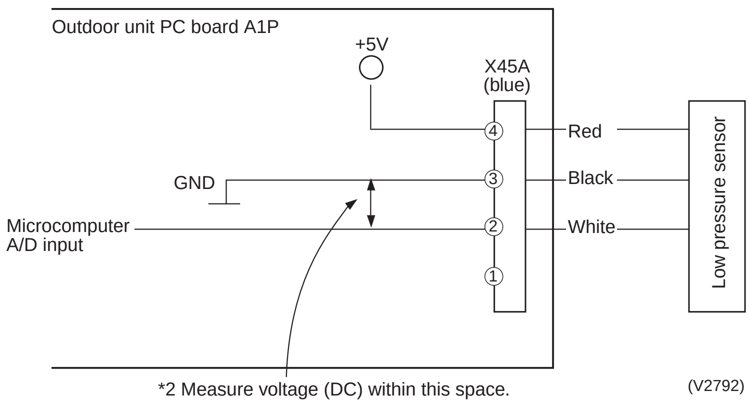
**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2791)

*1: Voltage measurement point




(V2792)

*2: Refer to pressure sensor, pressure / voltage characteristics table on P276.

## 2.16 "E5" Compressor Motor Lock

**Remote Control Display**

E5

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Inverter PC board takes the position signal from UVWN line connected between the inverter and compressor, and detects the position signal pattern.

**Malfunction Decision Conditions**

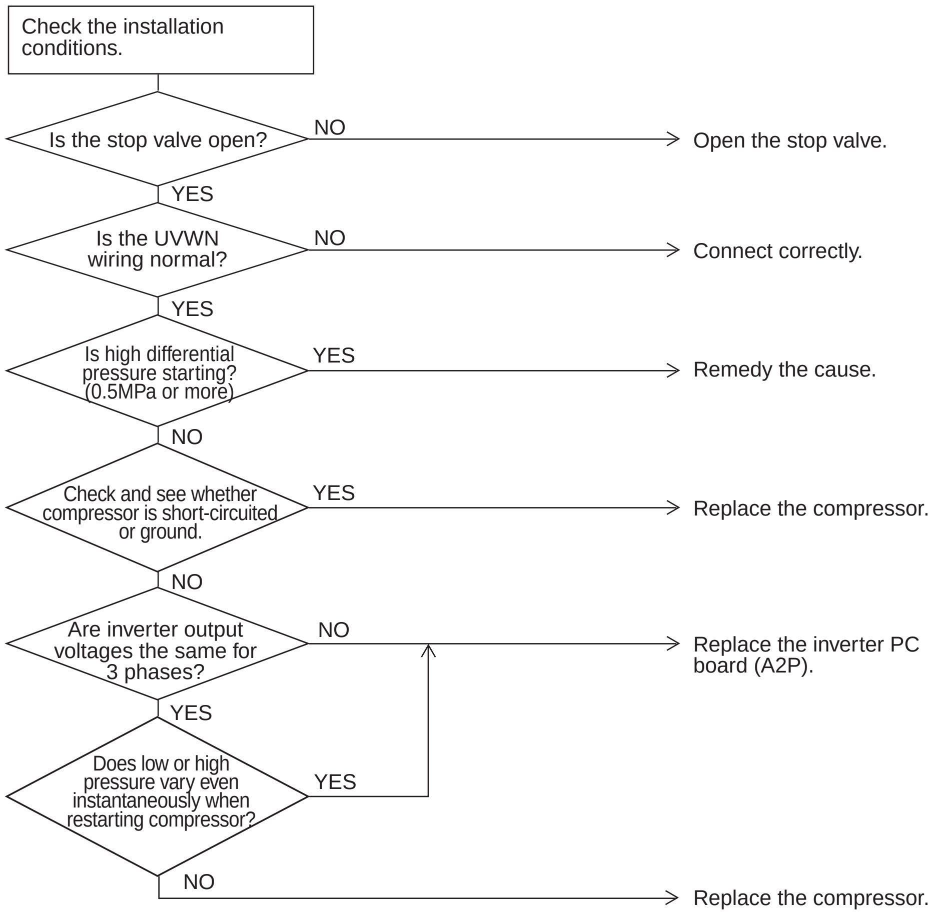
The position signal with 3 times cycle as imposed frequency is detected when compressor motor operates normally, but 2 times cycle when compressor motor locks. When the position signal in 2 times cycle is detected.

**Supposed Causes**

- Compressor lock
- High differential pressure (0.5MPa or more)
- Incorrect UVWN wiring
- Faulty inverter PC board
- Stop valve is left in closed.

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2793)

## 2.17 “E6” Compressor Motor Overcurrent/Lock

**Remote Control Display**

E6

**Applicable Models**

Outdoor unit

**Method of Malfunction Detection**

Detects the overcurrent with current sensor (CT).

**Malfunction Decision Conditions**

Malfunction is decided when the detected current value exceeds the below mentioned value for 2 seconds.

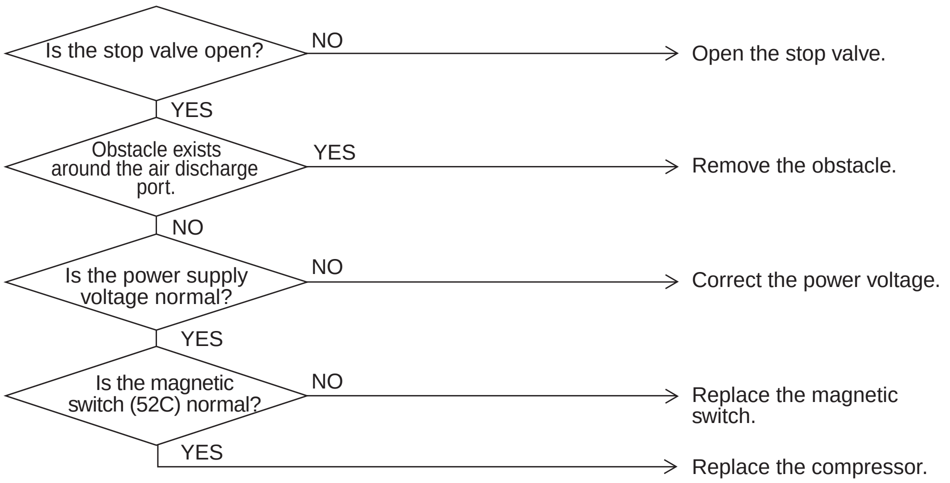
- 400 V unit : 15.0 A

**Supposed Causes**

- Closed stop value
- Obstacles at the discharge port
- Improper power voltage
- Faulty magnetic switch
- Faulty compressor

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V3051)

## 2.18 “E7” Malfunction of Outdoor Unit Fan Motor

**Remote Control Display**

E7

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Malfunction of fan motor system is detected according to the fan speed detected by hall IC when the fan motor runs.

**Malfunction Decision Conditions**

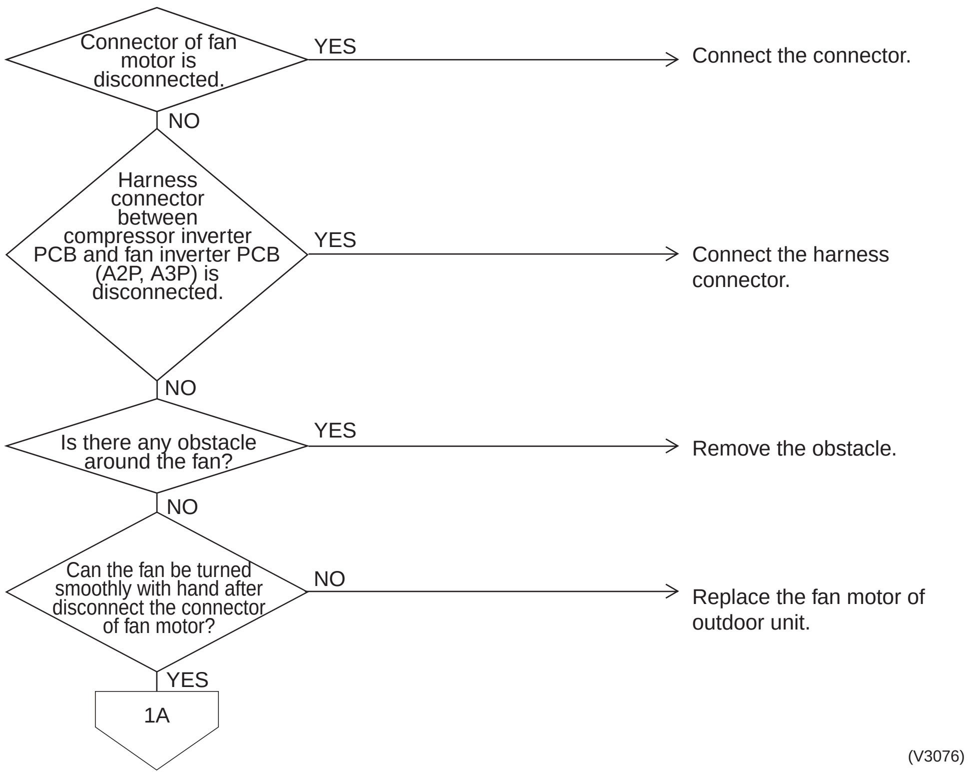
- When the fan runs with speed less than a specified one for 15 seconds or more when the fan motor running conditions are met
- When connector detecting fan speed is disconnected
- When malfunction is generated 4 times, the system shuts down.

**Supposed Causes**

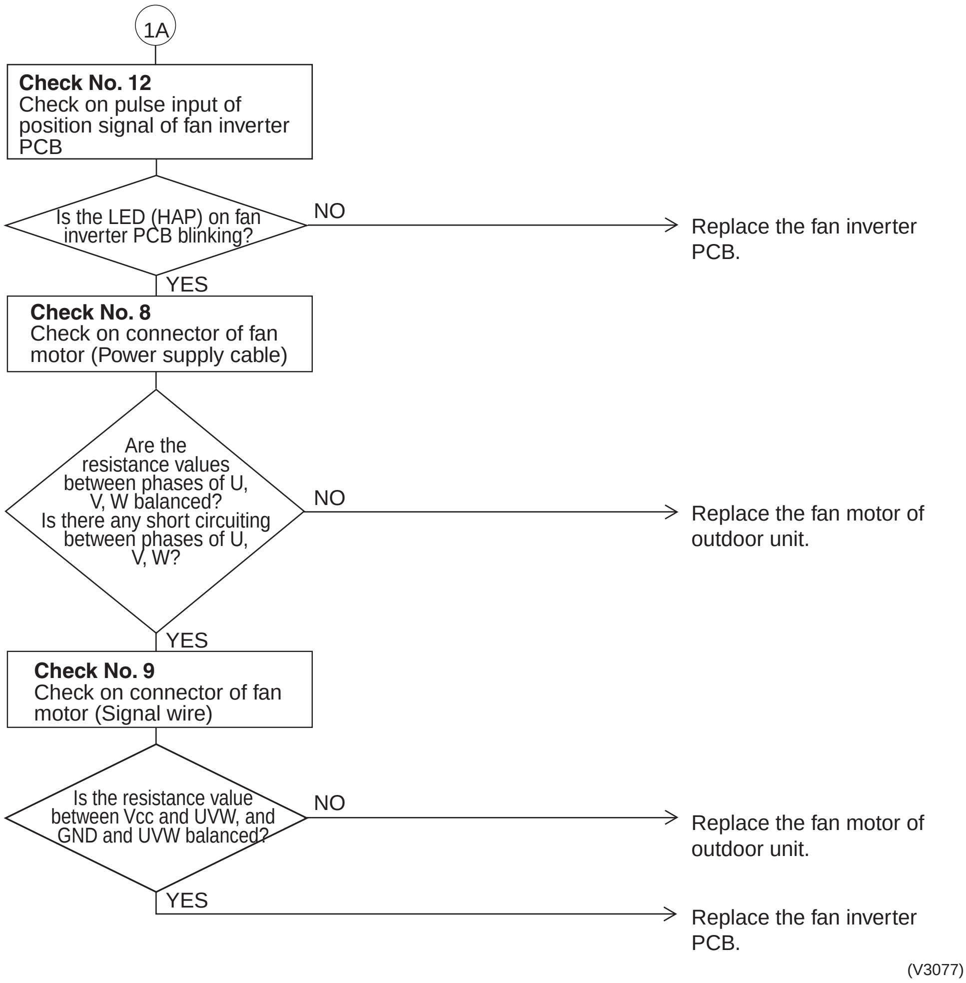
- Malfunction of fan motor
- The harness connector between fan motor and PC board is left in disconnected, or faulty connector
- Fan does not run due to foreign matters tangled
- Clearing condition: Operate for 5 minutes (normal)

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



## Troubleshooting




**Note:** Refer check 8, 9 and 12 to P.237~238.

## 2.19 “E9” Outdoor Unit: Malfunction of Moving Part of Electronic Expansion Valve (Y1E, Y2E)

**Remote Control Display**

E9

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Check disconnection of connector
Check continuity of expansion valve coil

**Malfunction Decision Conditions**

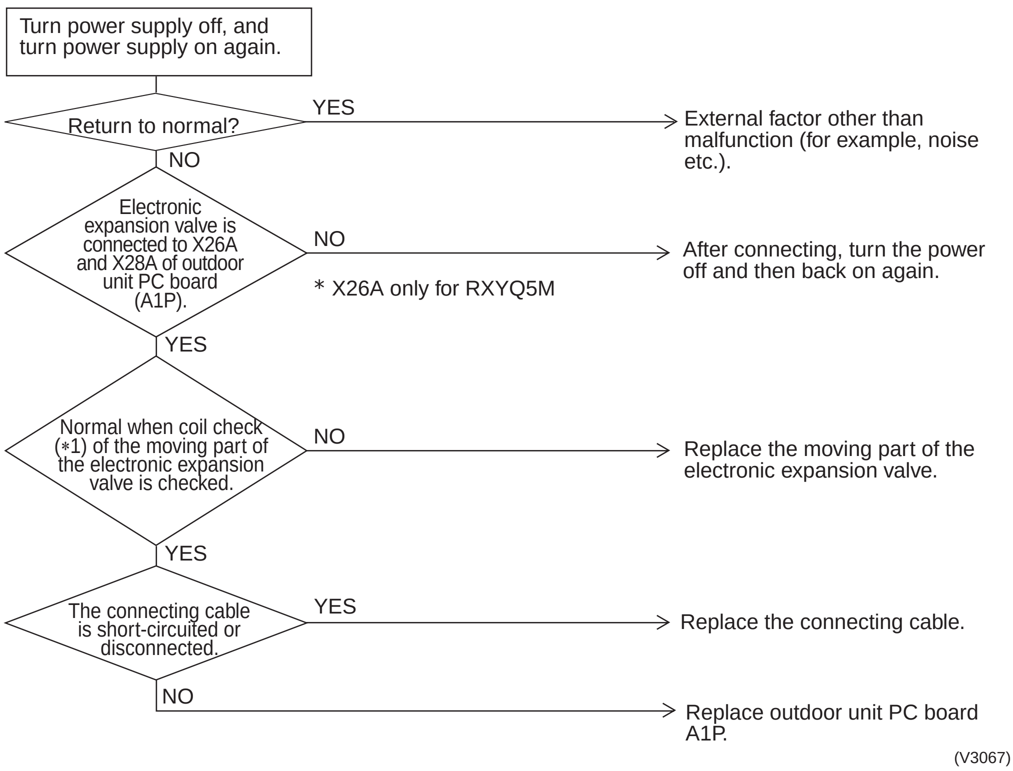
Error is generated under no common power supply when the power is on.

**Supposed Causes**

- Defect of moving part of electronic expansion valve
- Defect of outdoor unit PC board (A1P)
- Defect of connecting cable

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



*1 Coil check method for the moving part of the electronic expansion valve
Disconnect the electronic expansion valve from the PC board and check the continuity between the connector pins.

(Normal)

| Pin No. | 1. White | 2. Yellow | 3. Orange | 4. Blue | 5. Red | 6. Brown |
|---|---|---|---|---|---|---|
| 1. White | | x | ◎ | x | ○ | x |
| 2. Yellow | | | x | ◎ | x | ○ |
| 3. Orange | | | | x | ○ | x |
| 4. Blue | | | | | x | ○ |
| 5. Red | | | | | | x |
| 6. Brown | | | | | | |

◎ : Continuity Approx. 300Ω
○ : Continuity Approx. 150Ω
x : No continuity

# 2.20 "F3" Outdoor Unit: Abnormal Discharge Pipe Temperature

**Remote Control Display**

F3

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Abnormality is detected according to the temperature detected by the discharge pipe temperature sensor.

**Malfunction Decision Conditions**

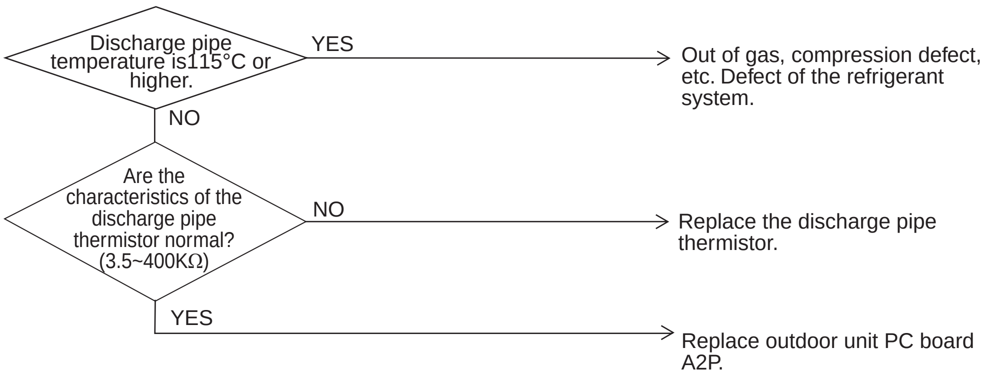
- When the discharge pipe temperature rises to an abnormally high level
- When the discharge pipe temperature rises suddenly

**Supposed Causes**

- Faulty discharge pipe temperature sensor
- Faulty connection of discharge pipe temperature sensor
- Faulty outdoor unit PCB

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V3068)

*2: Refer to thermistor resistance / temperature characteristics table on P274.

## 2.21 “F6” Refrigerant Overcharged

**Remote Control Display**

F6

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Refrigerant overcharge is detected from the receiver gas pipe temperature during test operation.

**Malfunction Decision Conditions**

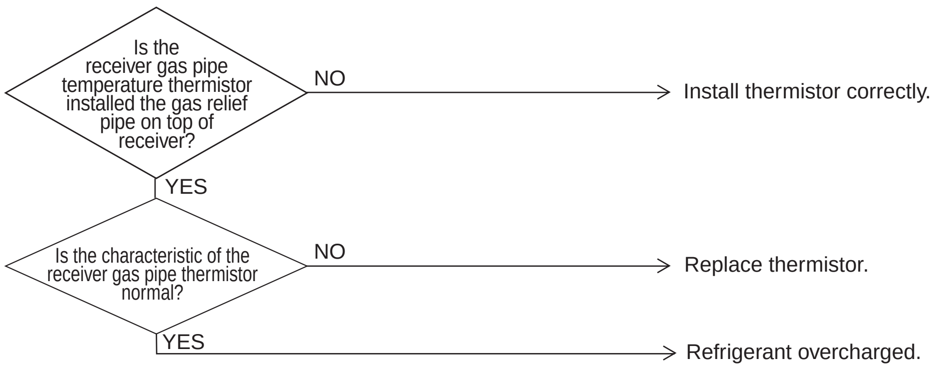
When the receiver gas pipe temperature is lower than evaporating temperature during test operation.

**Supposed Causes**

- Refrigerant overcharge
- Disconnection of the receiver gas pipe thermistor

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2797)

# 2.22 "H7" Abnormal Outdoor Fan Motor Signal

**Remote Control Display**

H7

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Detection of abnormal signal from fan motor.

**Malfunction Decision Conditions**

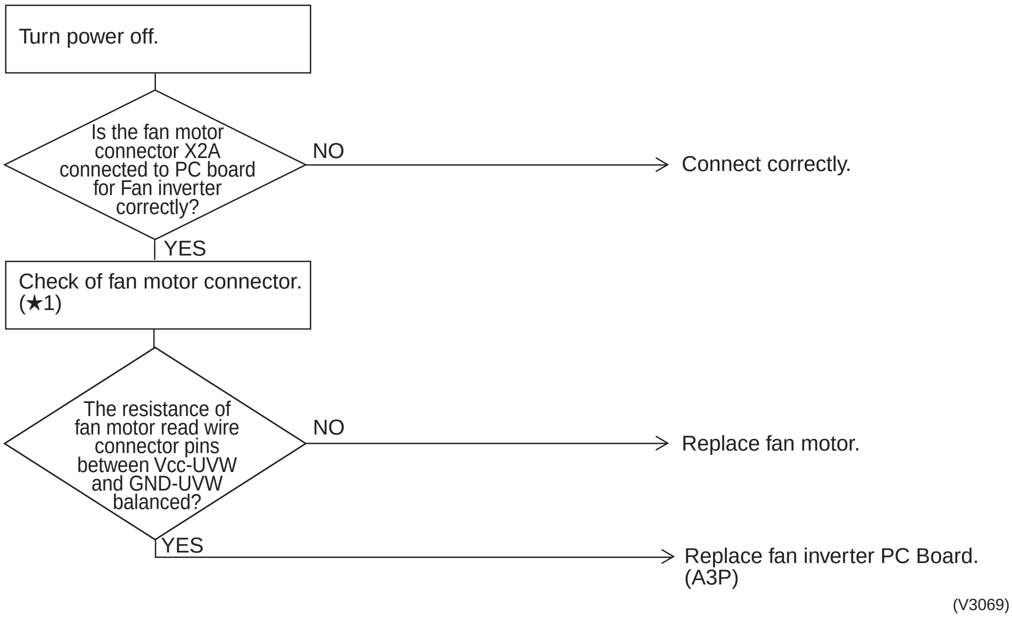
In case of detection of abnormal signal at starting fan motor.

**Supposed Causes**

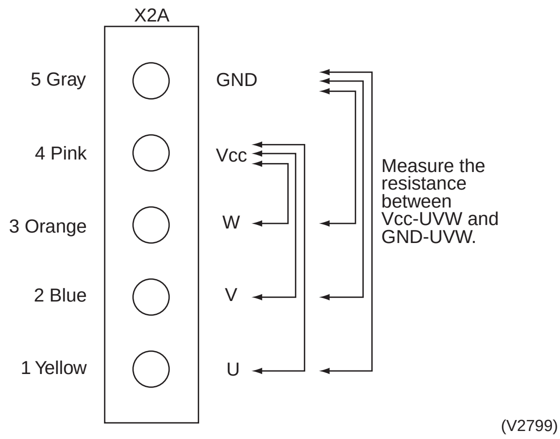
- Abnormal fan motor signal (circuit malfunction)
- Broken, short or disconnection connector of fan motor connection cable
- Fan Inverter PC board malfunction

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




★1: Disconnect connector (X2A) and measure the following resistance.



## 2.23 "H9" Outdoor Unit: Malfunction of Thermistor for Outdoor Air (R1T)

**Remote Control Display**

H9

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

The abnormal detection is based on current detected by current sensor.

**Malfunction Decision Conditions**

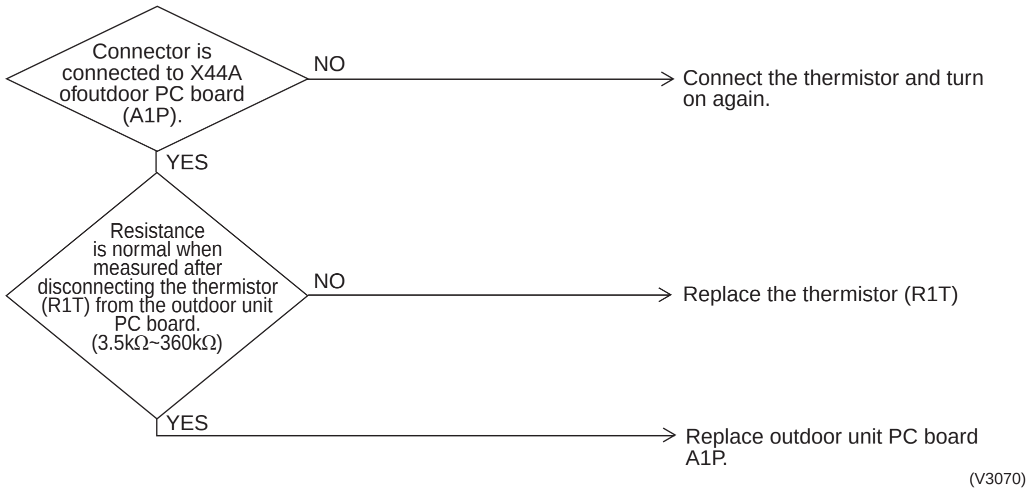
When the outside air temperature sensor has short circuit or open circuit.

**Supposed Causes**

- Defect of thermistor (R1T) for outdoor air
- Defect of outdoor unit PC board (A1P)

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




The alarm indicator is displayed when the fan only is being used also.

*2: Refer to thermistor resistance / temperature characteristics table on P274.

## 2.24 "J2" Current Sensor Malfunction

**Remote Control Display**

J2

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Malfunction is detected according to the current value detected by current sensor.

**Malfunction Decision Conditions**

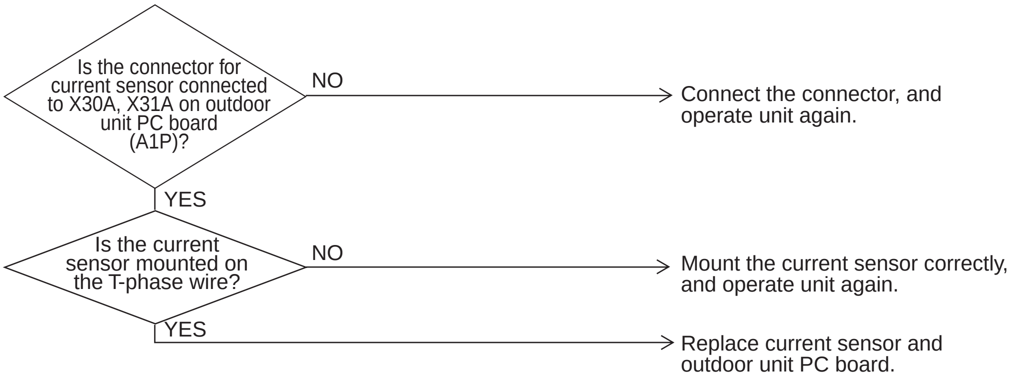
When the current value detected by current sensor becomes 5A or lower, or 40A or more during standard compressor operation.

**Supposed Causes**

- Faulty current sensor
- Faulty outdoor unit PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V3071)

# 2.25 "J3" Outdoor Unit: Malfunction of Discharge Pipe Thermistor (R31~33T)

**Remote Control Display**

J3

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Malfunction is detected from the temperature detected by discharge pipe temperature thermistor.

**Malfunction Decision Conditions**

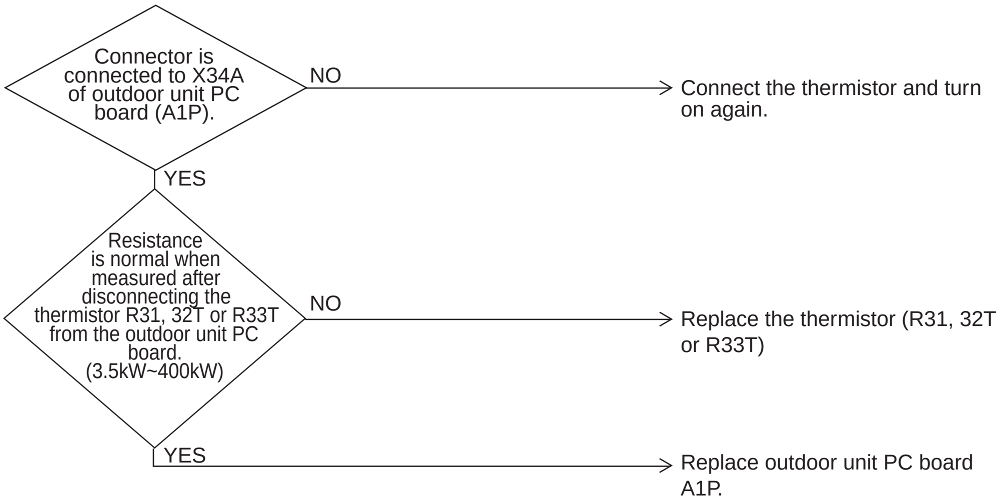
When a short circuit or an open circuit in the discharge pipe temperature thermistor is detected.

**Supposed Causes**

- Defect of thermistor (R31T, R32T or R33T) for outdoor unit discharge pipe
- Defect of outdoor unit PC board (A1P)

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V3072)

The alarm indicator is displayed when the fan is being used also.

**Note:** 5 HP class ··· R31T
8~12 HP class ··· R31T, R32T
14, 16Hp class ··· R31T, R32T and R33T

## 2.26 “J5” Outdoor Unit: Malfunction of Thermistor (R2T) for Suction Pipe

**Remote Control Display**
J5

**Applicable Models**
RXYQ5~48M

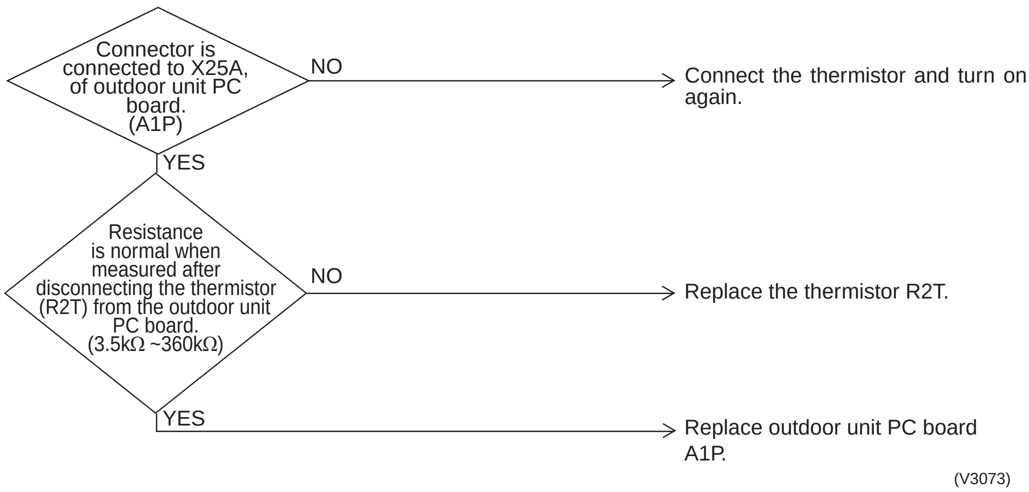
**Method of Malfunction Detection**
Malfunction is detected from the temperature detected by the suction pipe temperature thermistor.

**Malfunction Decision Conditions**
When a short circuit or an open circuit in the suction pipe temperature thermistor is detected.

**Supposed Causes**
- Defect of thermistor (R2T) for outdoor unit suction pipe
- Defect of outdoor unit PC board (A1P)

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




*2: Refer to thermistor resistance / temperature characteristics table on P274.

# 2.27 “J6” Outdoor Unit: Malfunction of Thermistor (R4T) for Outdoor Unit Heat Exchanger

**Remote Control Display**

J6

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Malfunction is detected from the temperature detected by the heat exchanger thermistor.

**Malfunction Decision Conditions**

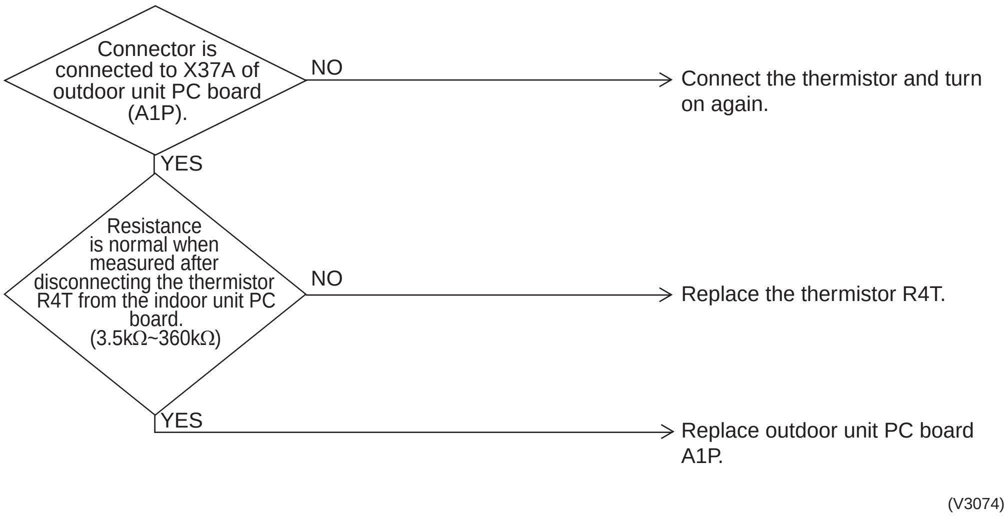
When a short circuit or an open circuit in the heat exchange thermistor is detected.

**Supposed Causes**

- Defect of thermistor (R4T) for outdoor unit coil
- Defect of outdoor unit PC board (A1P)

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




*2: Refer to thermistor resistance / temperature characteristics table on P274.

## 2.28 “J9” Malfunction of Receiver Gas Pipe Thermistor (R5T)

**Remote Control Display**
J9

**Applicable Models**
RXYQ5~48M

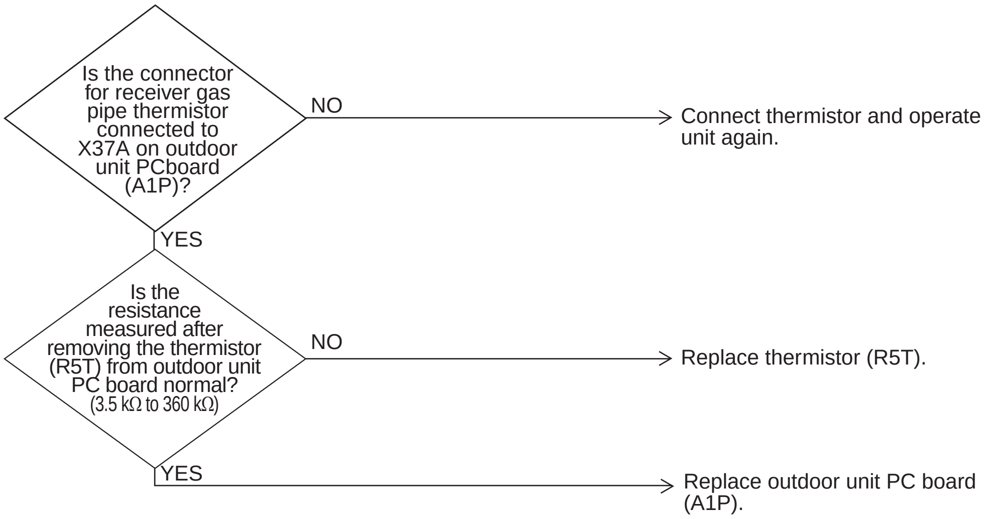
**Method of Malfunction Detection**
Malfunction is detected according to the temperature detected by receiver gas pipe thermistor.

**Malfunction Decision Conditions**
When the receiver gas pipe thermistor is short circuited or open.

**Supposed Causes**
- Faulty receiver gas pipe thermistor (R5T)
- Faulty outdoor unit PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V3075)

*2: Refer to thermistor resistance / temperature characteristics table on P274.

# 2.29 "JA" Outdoor Unit: Malfunction of Discharge Pipe Pressure Sensor

**Remote Control Display**

JA

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Malfunction is detected from the pressure detected by the high pressure sensor.

**Malfunction Decision Conditions**

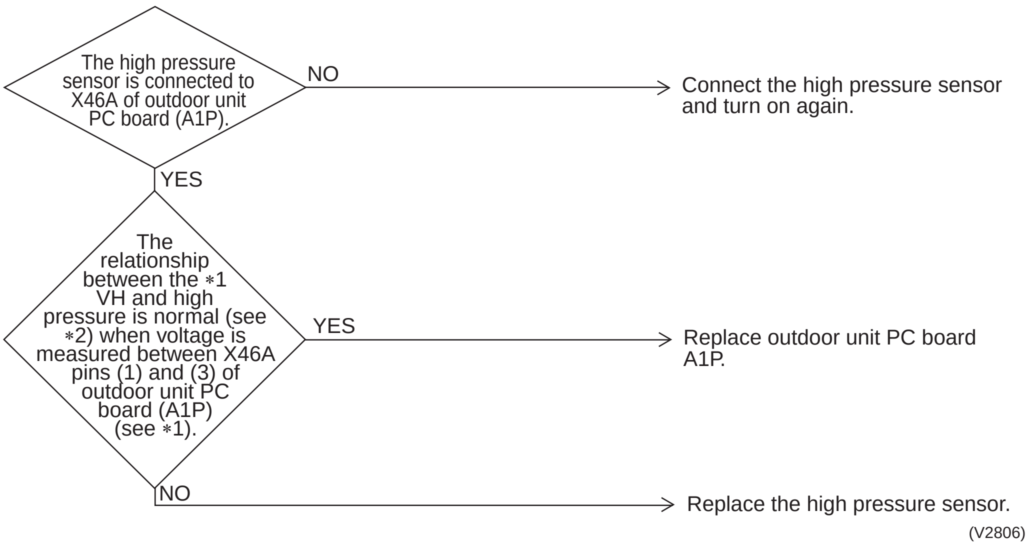
When the discharge pipe pressure sensor is short circuit or open circuit.

**Supposed Causes**

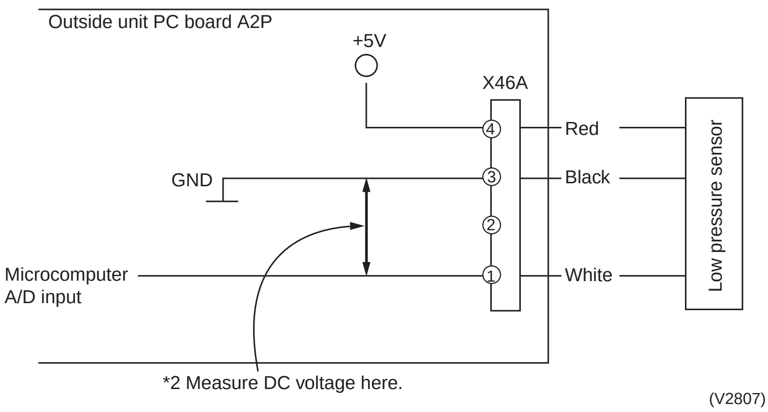
- Defect of high pressure sensor system
- Connection of low pressure sensor with wrong connection.
- Defect of outdoor unit PC board.

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




***1**: Voltage measurement point




***2**: Refer to pressure sensor, pressure / voltage characteristics table on P276.

# 2.30 "JC" Outdoor Unit: Malfunction of Suction Pipe Pressure Sensor

**Remote Control Display**

JC

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Malfunction is detected from pressure detected by low pressure sensor.

**Malfunction Decision Conditions**

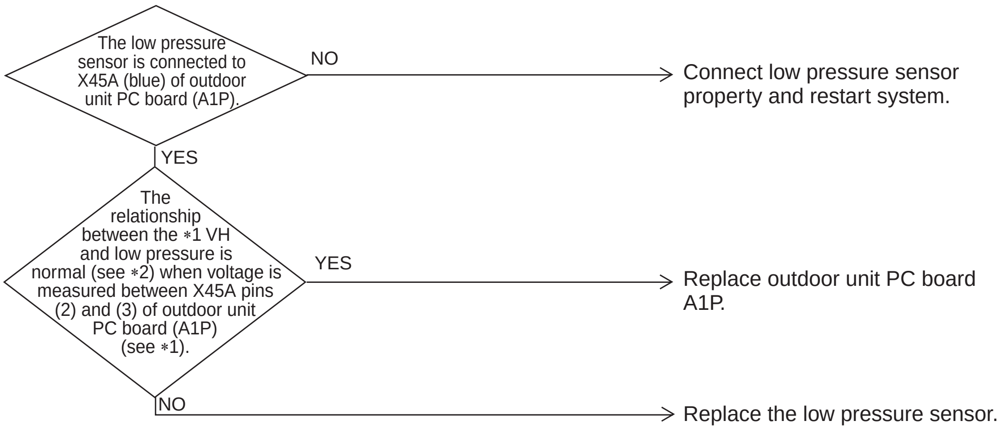
When the suction pipe pressure sensor is short circuit or open circuit.

**Supposed Causes**

- Defect of low pressure sensor system
- Connection of high pressure sensor with wrong connection.
- Defect of outdoor unit PC board.

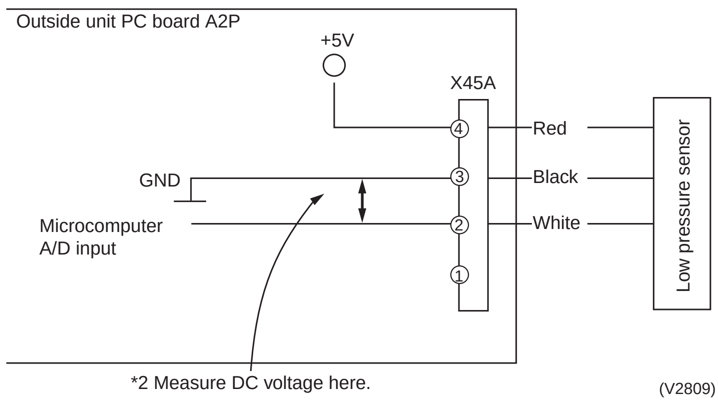
**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2808)

*****1: Voltage measurement point




(V2809)

*****2: Refer to pressure sensor, pressure/voltage characteristics table on P276.

## 2.31 "L4" Outdoor Unit: Malfunction of Inverter Radiating Fin Temperature Rise

**Remote Control Display**

L4

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Fin temperature is detected by the thermistor of the radiation fin.

**Malfunction Decision Conditions**

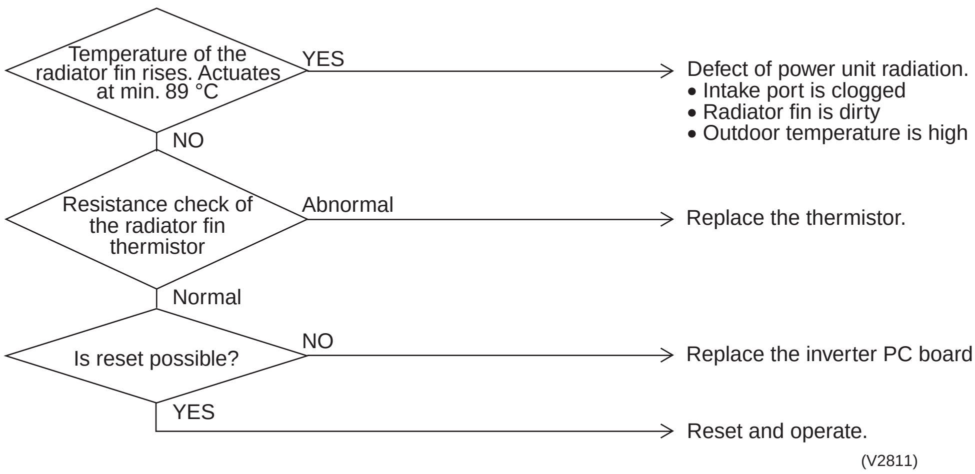
When the temperature of the inverter radiation fin increases above 89°C.

**Supposed Causes**

- Actuation of fin thermal (Actuates above 89°C)
- Defect of inverter PC board
- Defect of fin thermistor

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




*2: Refer to thermistor resistance / temperature characteristics table on P274.

## 2.32 “L5” Outdoor Unit: Inverter Compressor Abnormal

**Remote Control Display**
L5

**Applicable Models**
RXYQ5~48M

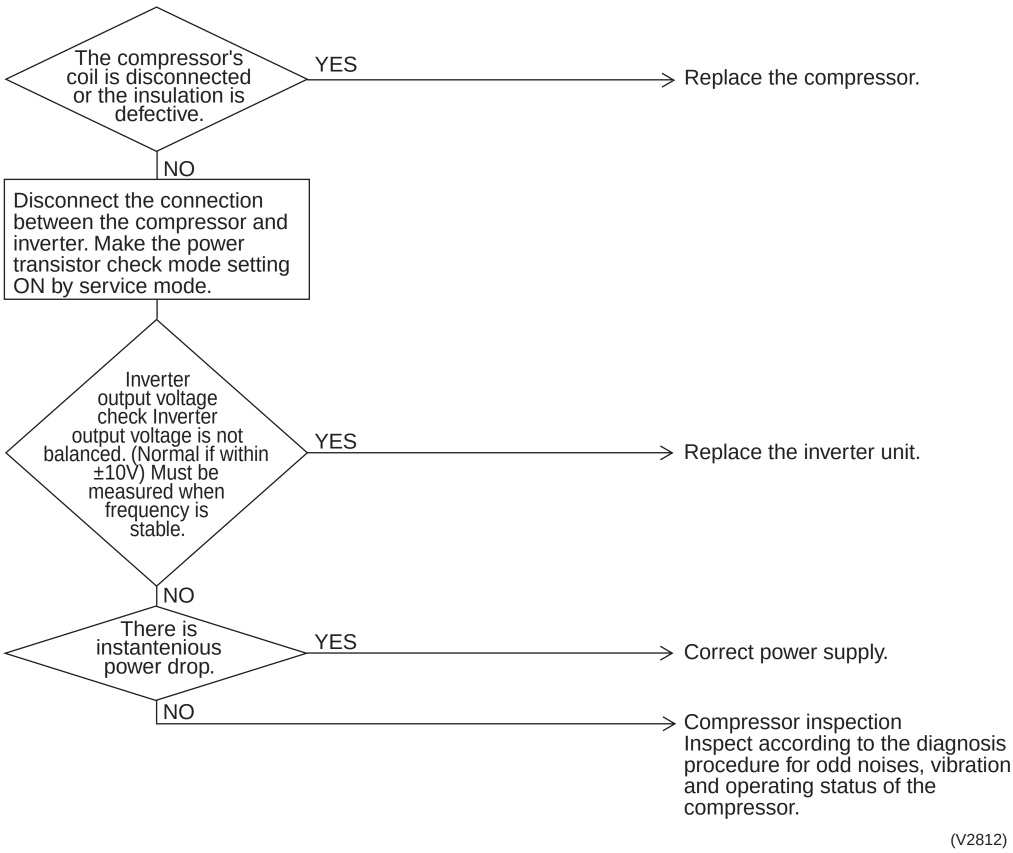
**Method of Malfunction Detection**
Malfunction is detected from current flowing in the power transistor.

**Malfunction Decision Conditions**
When an excessive current flows in the power transistor.
(Instantaneous overcurrent also causes activation.)

**Supposed Causes**
- Defect of compressor coil (disconnected, defective insulation)
- Compressor start-up malfunction (mechanical lock)
- Defect of inverter PC board

**Troubleshooting**
Compressor inspection

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




Higher voltage than actual is displayed when the inverter output voltage is checked by tester.

# 2.33 “L8” Outdoor Unit: Inverter Current Abnormal

**Remote Control Display**

L8

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Malfunction is detected by current flowing in the power transistor.

**Malfunction Decision Conditions**

When overload in the compressor is detected.

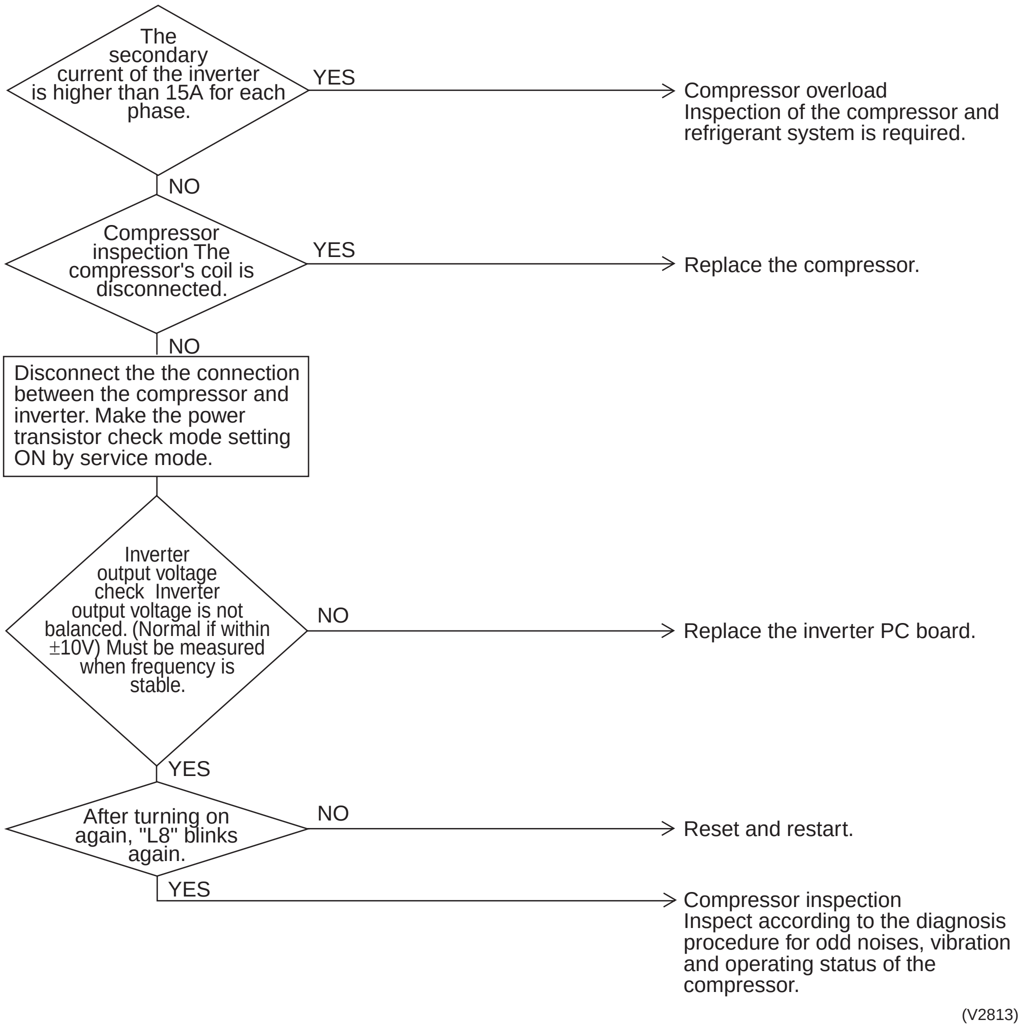
**Supposed Causes**

- Compressor overload
- Compressor coil disconnected
- Defect of inverter PC board

**Troubleshooting**

Output current check

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



# 2.34 "L9" Outdoor Unit: Inverter Start up Error

**Remote Control Display**

L9

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Malfunction is detected from current flowing in the power transistor.

**Malfunction Decision Conditions**

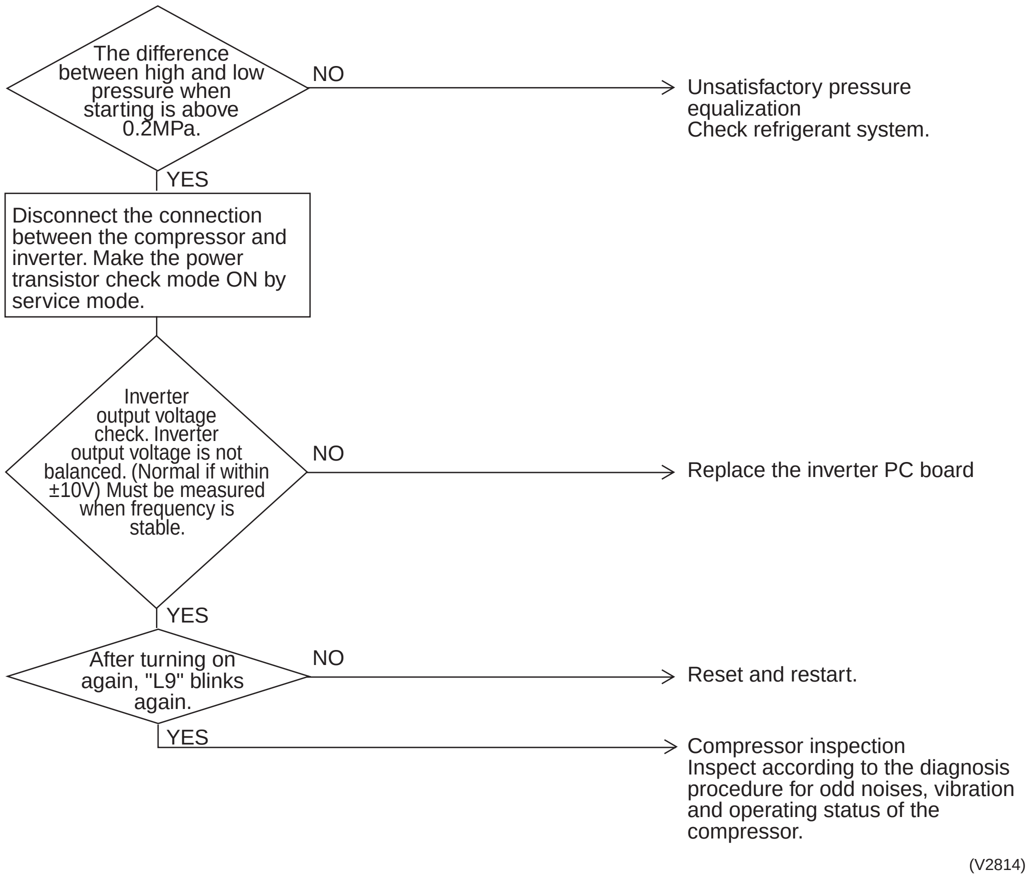
When overload in the compressor is detected during startup

**Supposed Causes**

- Defect of compressor
- Pressure differential start
- Defect of inverter PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



# 2.35 “LC” Outdoor Unit: Malfunction of Transmission Between Inverter and Control PC Board

**Remote Control Display**

LC

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Check the communication state between inverter PC board and control PC board by micro-computer.

**Malfunction Decision Conditions**

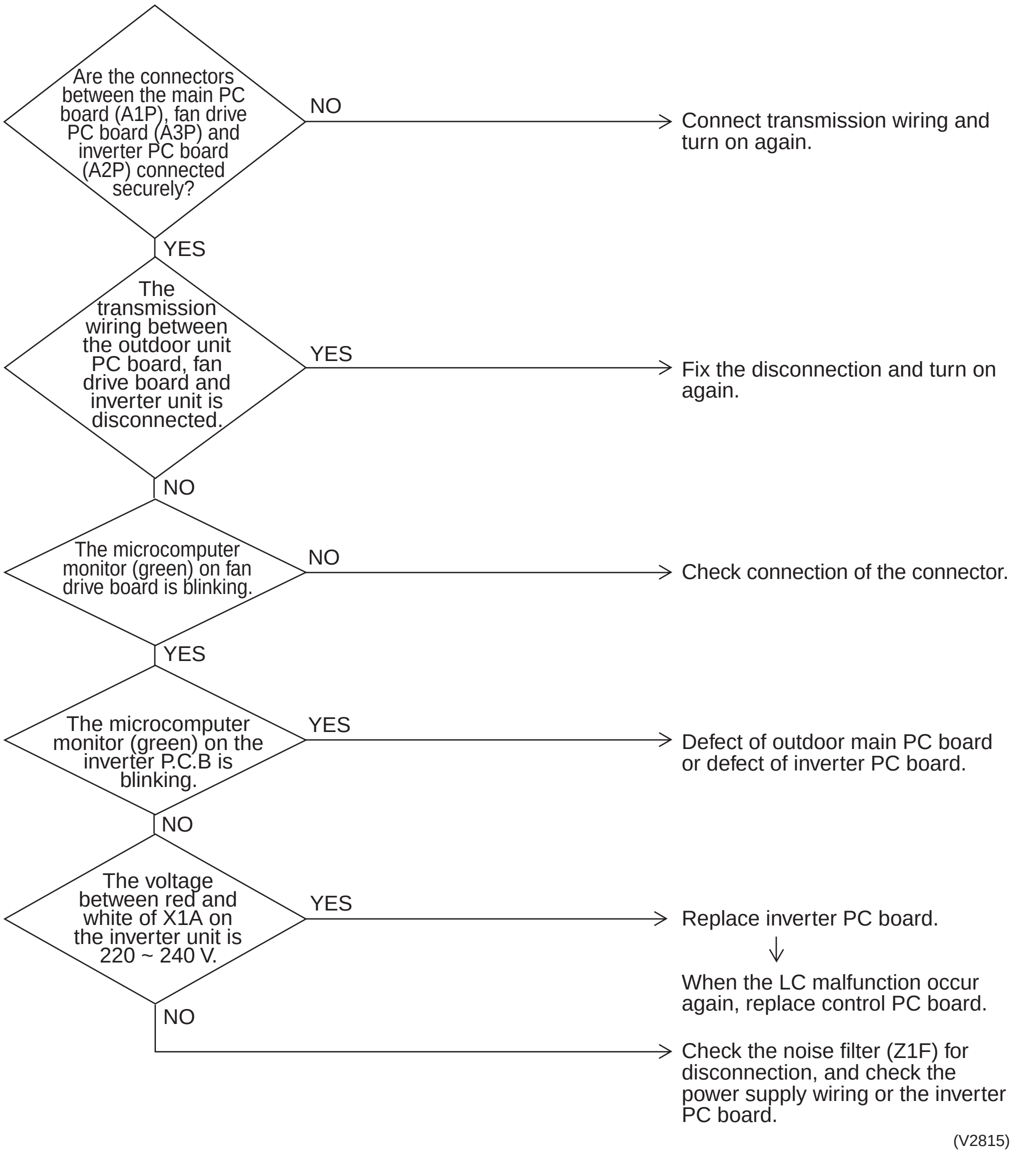
When the correct communication is not conducted in certain period.

**Supposed Causes**

- Malfunction of connection between the inverter PC board and outdoor control PC board
- Defect of outdoor control PC board (transmission section)
- Defect of inverter PC board
- Defect of noise filter
- External factor (Noise etc.)

## Troubleshooting

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



## 2.36 "P1" Outdoor Unit: Inverter Over-Ripple Protection

**Remote Control Display**

P1

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Imbalance in supply voltage is detected in PC board.

**Malfunction Decision Conditions**

When the resistance value of thermistor becomes a value equivalent to open or short circuited status.

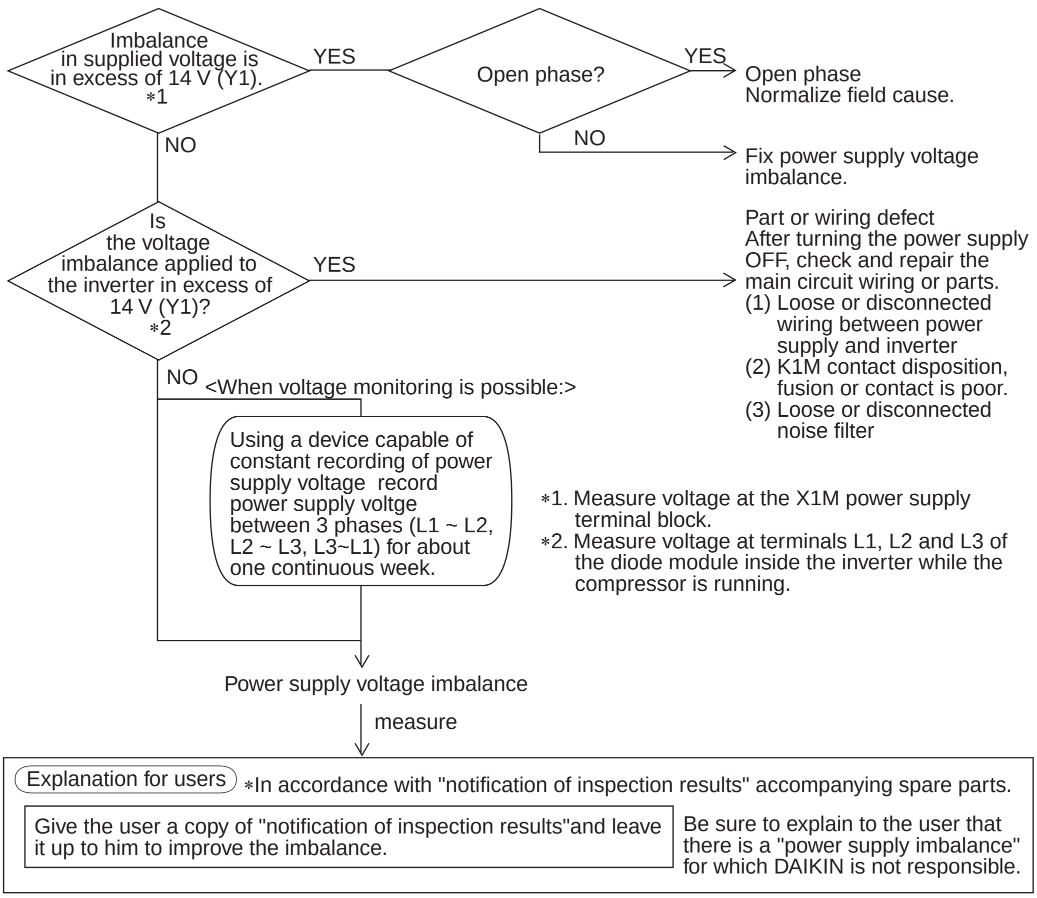
- Malfunction is not decided while the unit operation is continued.
  "P1" will be displayed by pressing the inspection button.

**Supposed Causes**

- Open phase
- Voltage imbalance between phases
- Defect of main circuit capacitor
- Defect of inverter PC board
- Defect of K1M
- Improper main circuit wiring

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2816)

# 2.37 “P4” Outdoor Unit: Malfunction of Inverter Radiating Fin Temperature Rise Sensor

**Remote Control Display**

P4

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Resistance of radiation fin thermistor is detected when the compressor is not operating.

**Malfunction Decision Conditions**

When the resistance value of thermistor becomes a value equivalent to open or short circuited status.

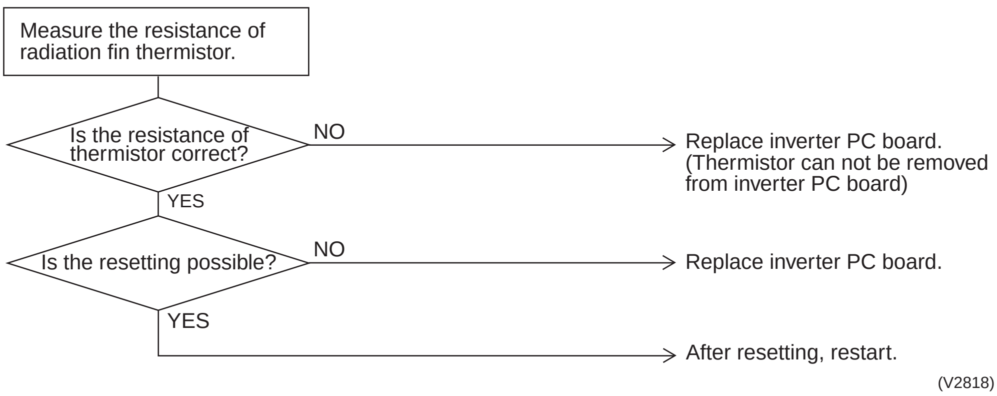
- Malfunction is not decided while the unit operation is continued.
  "P4" will be displayed by pressing the inspection button.

**Supposed Causes**

- Defect of radiator fin temperature sensor
- Defect of inverter PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




*2: Refer to thermistor resistance / temperature characteristics table on P274.

# 2.38 "U0" Low Pressure Drop Due to Refrigerant Shortage or Electronic Expansion Valve Failure

**Remote Control Display**

U0

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Short of gas malfunction is detected by discharge pipe temperature thermistor.

**Malfunction Decision Conditions**

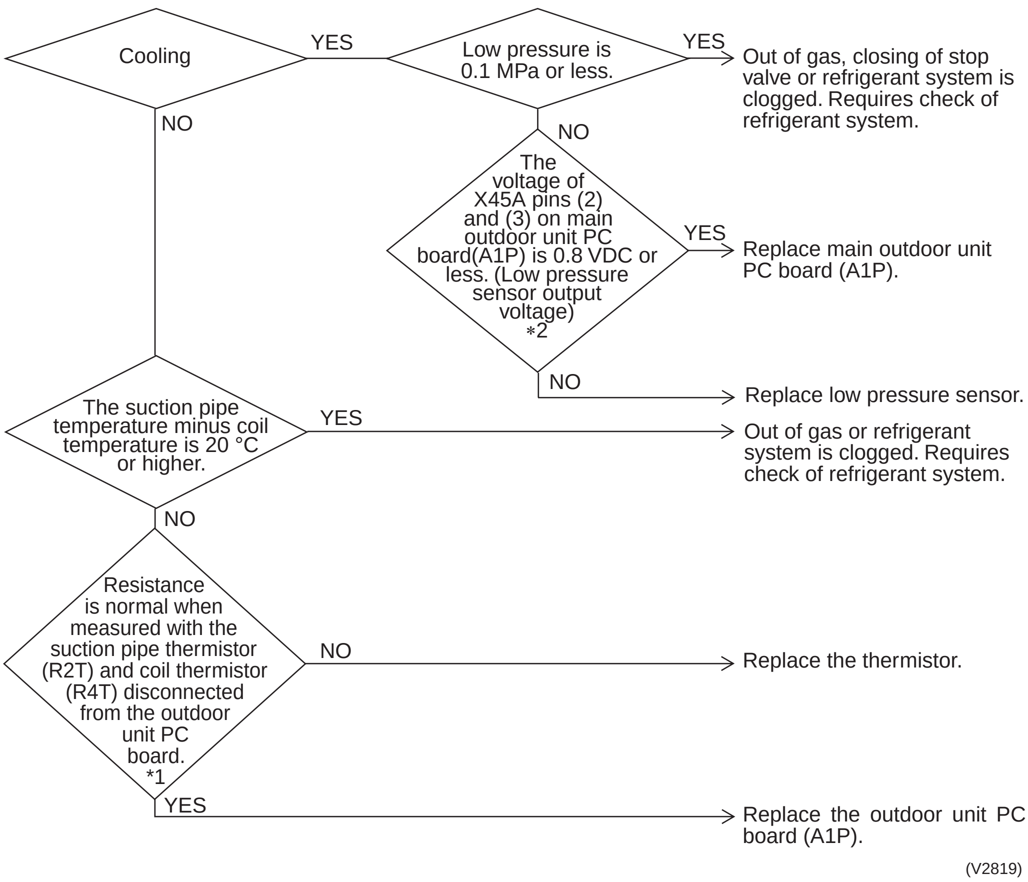
Microcomputer judge and detect if the system is short of refrigerant.
★Malfunction is not decided while the unit operation is continued.

**Supposed Causes**

- Out of gas or refrigerant system clogging (incorrect piping)
- Defect of pressure sensor
- Defect of outdoor unit PC board (A1P)
- Defect of thermistor R2T or R4T

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




*1: Refer to thermistor resistance / temperature characteristics table on P274.
*2: Refer to pressure sensor, pressure / voltage characteristics table on P276.

## 2.39 “U1” Reverse Phase, Open Phase

**Remote Control Display**

U1

**Applicable Models**

★3 phase outdoor unit only

**Method of Malfunction Detection**

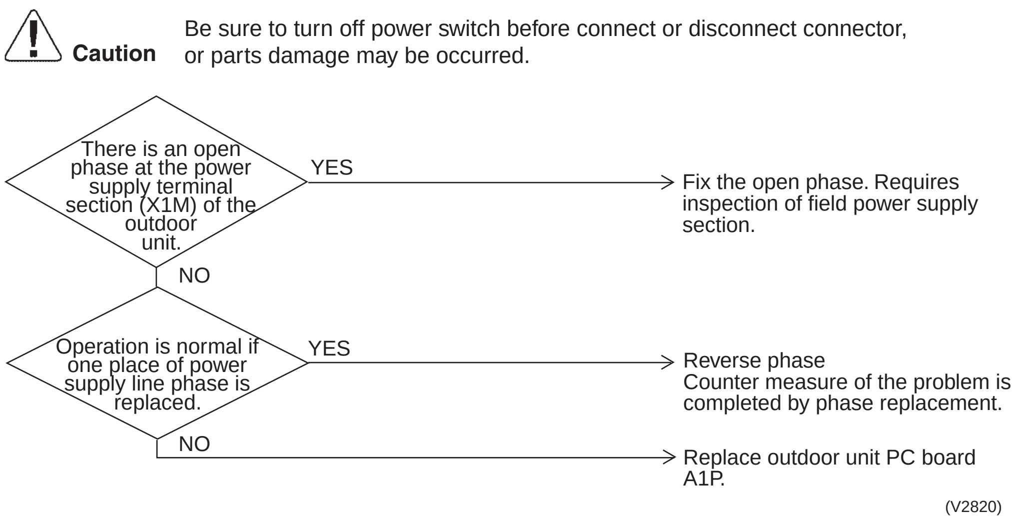
Detection is based on the voltage in main circuit capacitor for inverter and supply voltage.
The phase of each phase are detected by reverse phase detection circuit and right phase or reverse phase are judged.

**Malfunction Decision Conditions**

**Supposed Causes**

- Power supply reverse phase
- Power supply open phase
- Defect of outdoor PC board A1P

**Troubleshooting**



# 2.40 “U2” Power Supply Insufficient or Instantaneous Failure

**Remote Control Display**
U2

**Applicable Models**
RXYQ5~48M

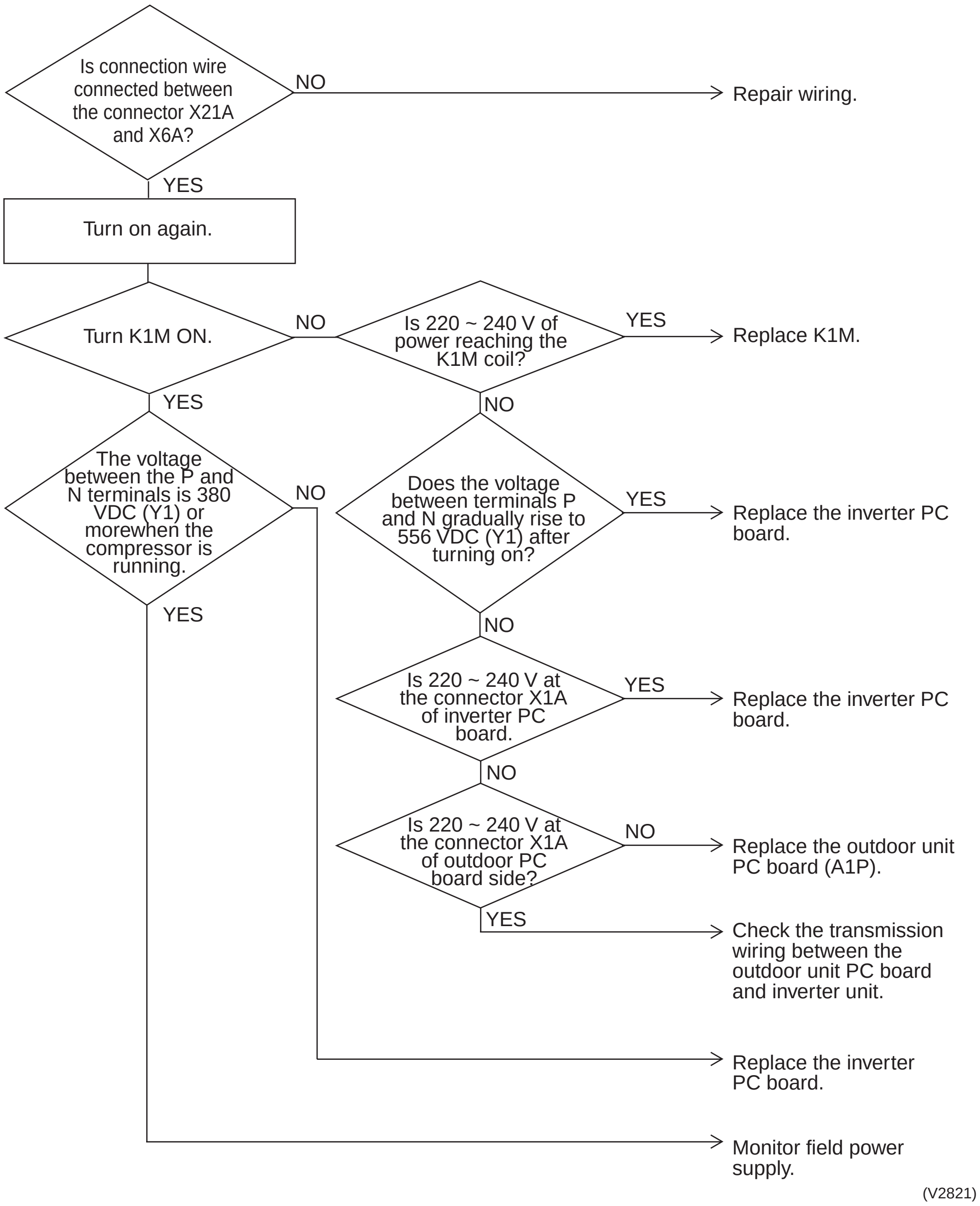
**Method of Malfunction Detection**
Detection of voltage of main circuit capacitor built in the inverter and power supply voltage.

**Malfunction Decision Conditions**

**Supposed Causes**
- Power supply insufficient
- Instantaneous failure
- Open phase
- Defect of inverter PC board
- Defect of outdoor control PC board
- Defect of K1M.
- Main circuit wiring defect

## Troubleshooting

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



## 2.41 “U3” Check Operation not executed

**Remote Control Display**

U3

**Applicable Models**

RXYQ5~48M

**Method of Malfunction Detection**

Check operation is executed or not

**Malfunction Decision Conditions**

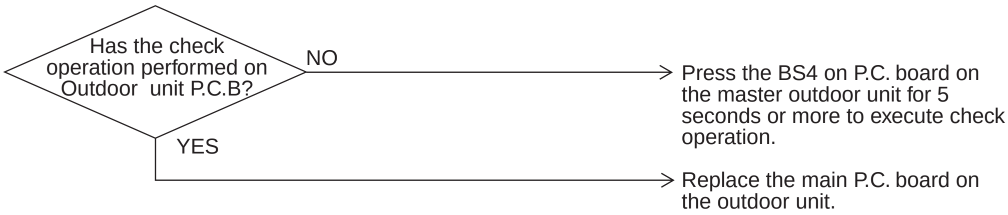
Malfunction is decided when the unit starts operation without check operation.

**Supposed Causes**

- Check operation is not executed.

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



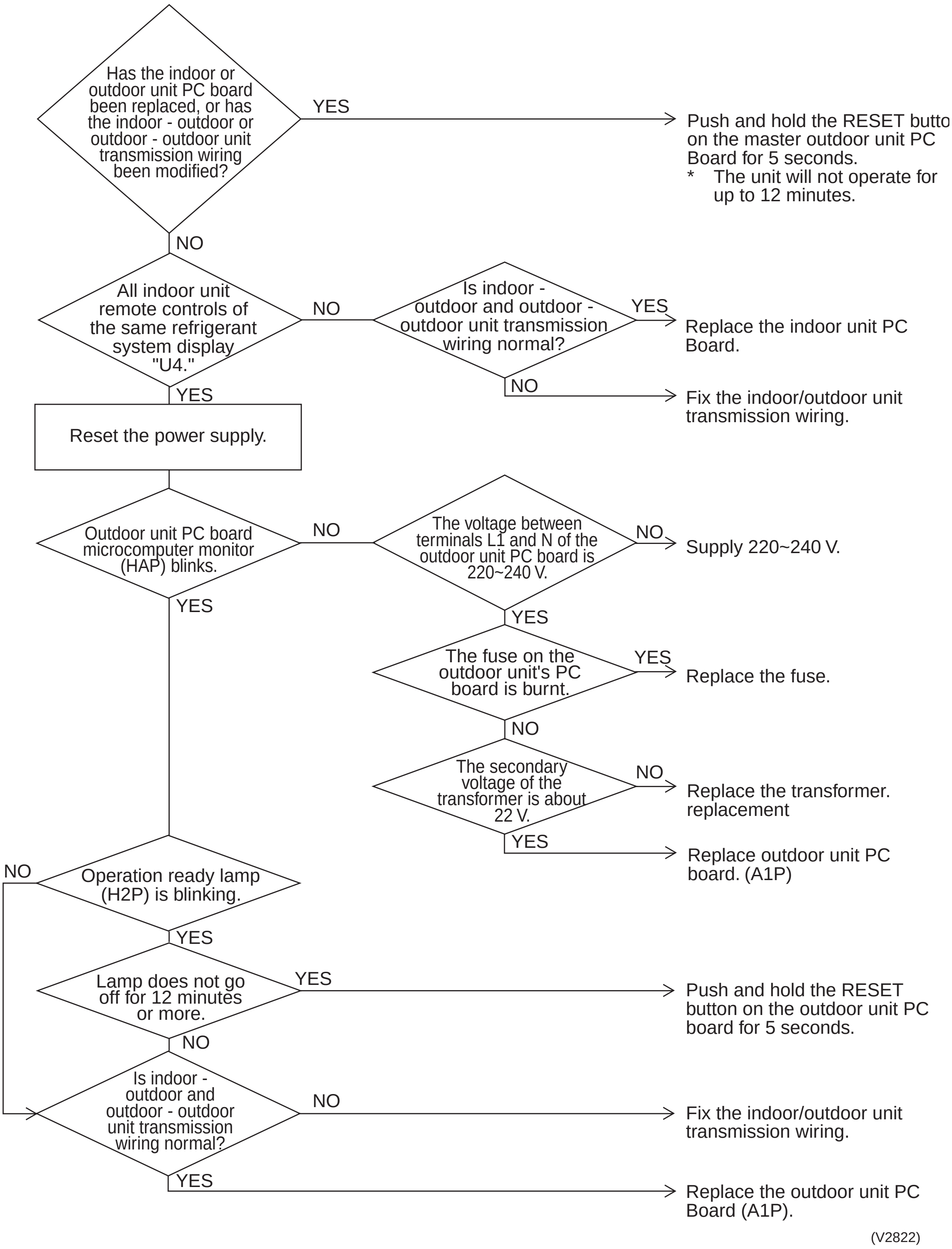

(V3052)

## 2.42 "U4" Malfunction of Transmission Between Indoor Units

| | |
|---|---|
| **Remote Control Display** | U4 |
| **Applicable Models** | All model of indoor unit<br>RXYQ5~48M |
| **Method of Malfunction Detection** | Microcomputer checks if transmission between indoor and outdoor units is normal. |
| **Malfunction Decision Conditions** | When transmission is not carried out normally for a certain amount of time |
| **Supposed Causes** | ■ Indoor to outdoor,outdoor to outdoor transmission wiring F1, F2 disconnection, short circuit or wrong wiring<br>■ Outdoor unit power supply is OFF<br>■ System address doesn't match<br>■ Defect of indoor unit PC board<br>■ Defect of outdoor unit PC board |

## Troubleshooting

Caution: Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



# 2.43 "U5" Malfunction of Transmission Between Remote Control and Indoor Unit

**Remote Control Display**
U5

**Applicable Models**
All models of indoor units

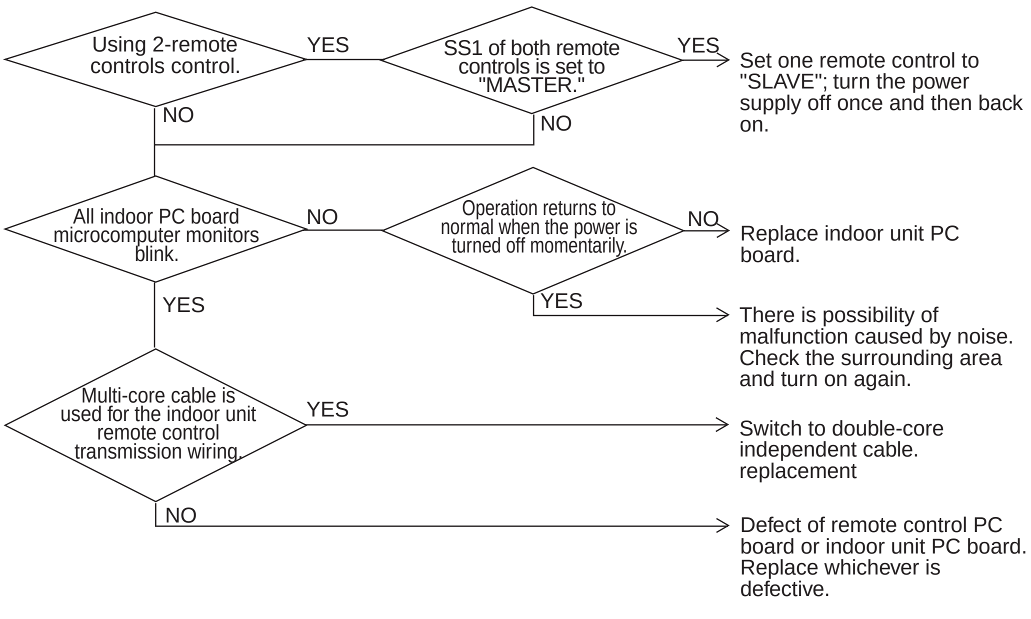
**Method of Malfunction Detection**
In case of controlling with 2-Remote Control, check the system using microcomputer is signal transmission between indoor unit and Remote Control (main and sub) is normal.

**Malfunction Decision Conditions**
Normal transmission does not continue for specified period.

**Supposed Causes**
- Malfunction of indoor unit Remote Control transmission
- Connection of two main Remote Controls (when using 2 Remote Controls)
- Defect of indoor unit PC board
- Defect of Remote Control PC board
- Malfunction of transmission caused by noise

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2823)

## 2.44 "U7" Malfunction of Transmission Between Outdoor Units

**Remote Control Display**

U7

**Applicable Models**

All models of indoor units

**Method of Malfunction Detection**

Microcomputer checks if transmission between indoor unit and Remote Control is normal.

**Malfunction Decision Conditions**

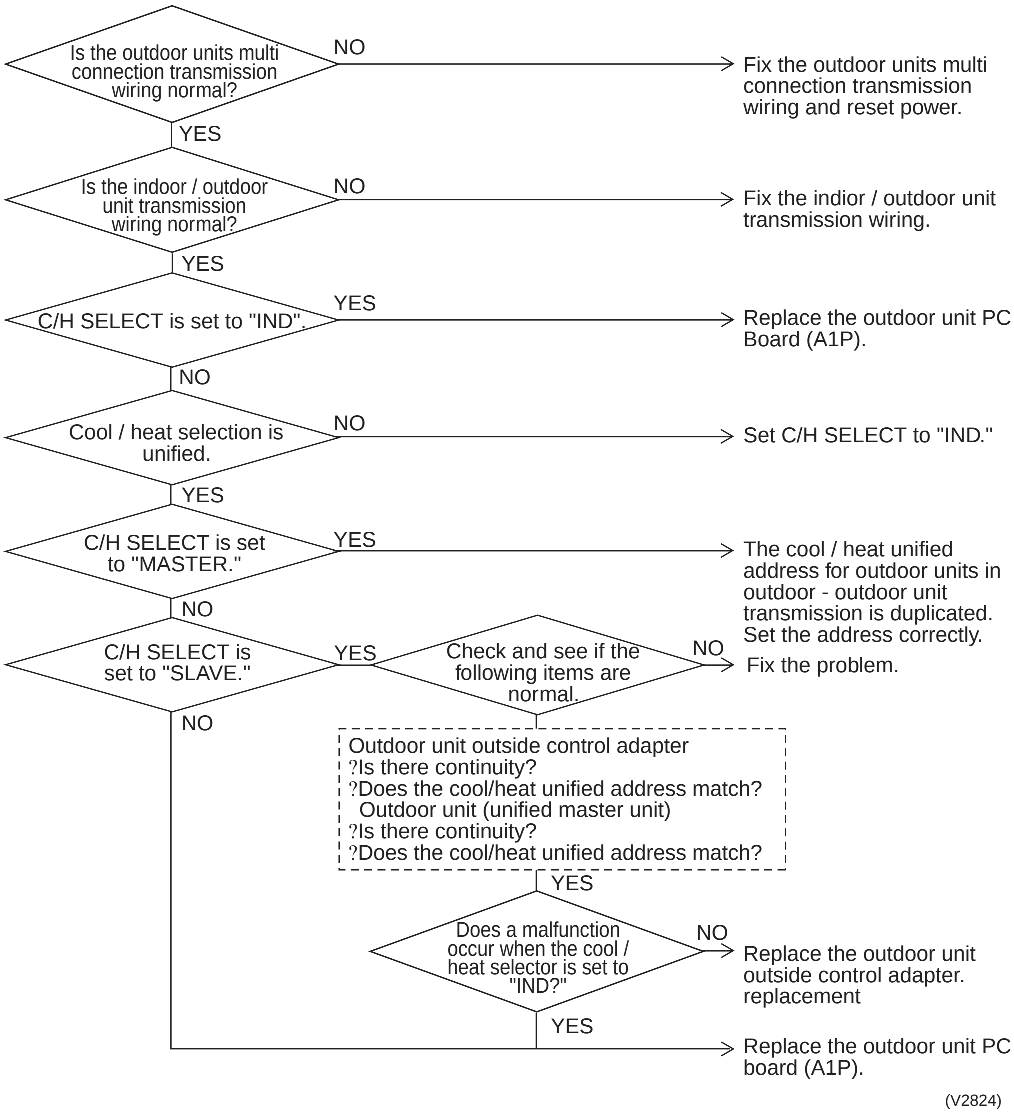
When transmission is not carried out normally for a certain amount of time

**Supposed Causes**

- Improper connection of transmission wiring between outdoor unit and outdoor unit outside control adapter
- Improper cool/heat selection
- Improper cool/heat unified address (outdoor unit, external control adapter for outdoor unit)
- Defect of outdoor unit PC board (A1P)
- Defect of outdoor unit outside control adapter
- Improper connection of transmission wiring between outdoor units of multi outdoor unit connection.

## Troubleshooting

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



# 2.45 “U8” Malfunction of Transmission Between Master and Slave Remote Controls

**Remote Control Display**

U8

**Applicable Models**

All models of indoor units

**Method of Malfunction Detection**

In case of controlling with 2-Remote Control, check the system using microcomputer if signal transmission between indoor unit and Remote Control (main and sub) is normal.

**Malfunction Decision Conditions**

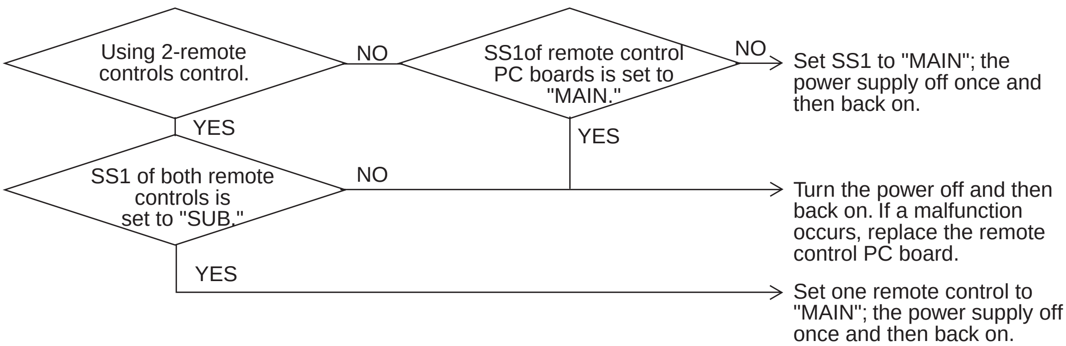
Normal transmission does not continue for specified period.

**Supposed Causes**

- Malfunction of transmission between main and sub Remote Control
- Connection between sub Remote Controls
- Defect of Remote Control PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2825)

## 2.46 “U9” Malfunction of Transmission Between Indoor and Outdoor Units in the Same System

**Remote Control Display**

U9

**Applicable Models**

All models of indoor units

**Method of Malfunction Detection**

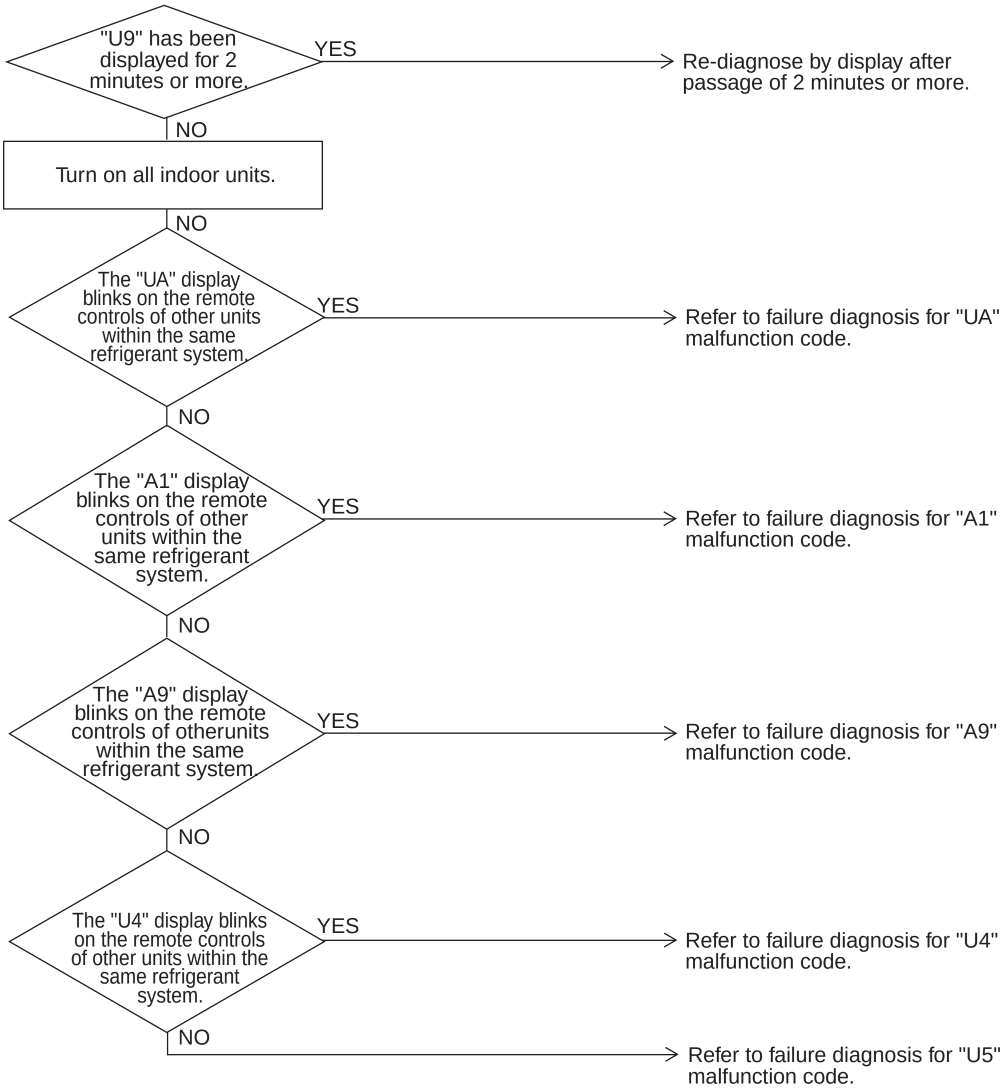
**Malfunction Decision Conditions**

**Supposed Causes**

- Malfunction of transmission within or outside of other system
- Malfunction of electronic expansion valve in indoor unit of other system
- Defect of PC board of indoor unit in other system
- Improper connection of transmission wiring between indoor and outdoor unit

## Troubleshooting

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2826)

## 2.47 “UA” Excessive Number of Indoor Units

**Remote Control Display**

UA

**Applicable Models**

All models of indoor unit
RXYQ5~48M

**Method of Malfunction Detection**

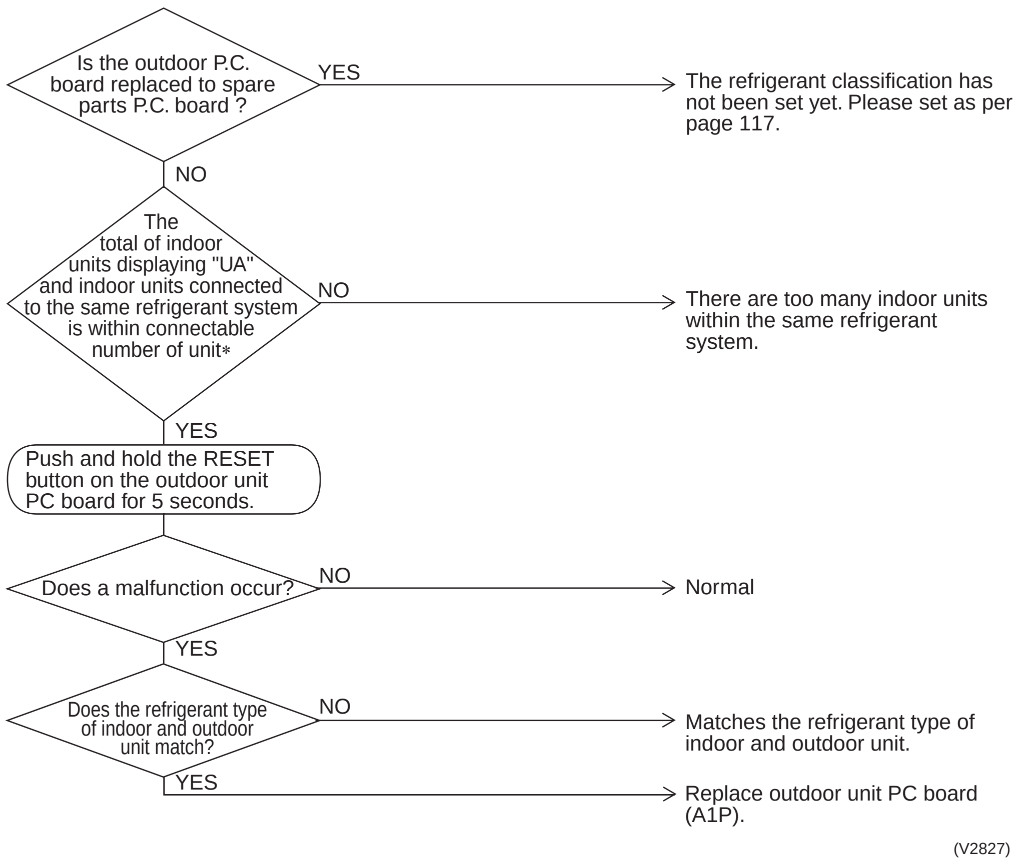
**Malfunction Decision Conditions**

**Supposed Causes**

- Excess of connected indoor units
- Defect of outdoor unit PC board (A1P)
- Mismatching of the refrigerant type of indoor and outdoor unit.
- Setting of outdoor P.C. board was not conducted after replacing to spare parts P.C. board.

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




***** The number of indoor units that can be connected to a single outdoor unit system depends on the type of outdoor unit.

# 2.48 “UC” Address Duplication of Central Remote Control

**Remote Control Display**

UC

**Applicable Models**

All models of indoor unit
Centralized controller

**Method of Malfunction Detection**

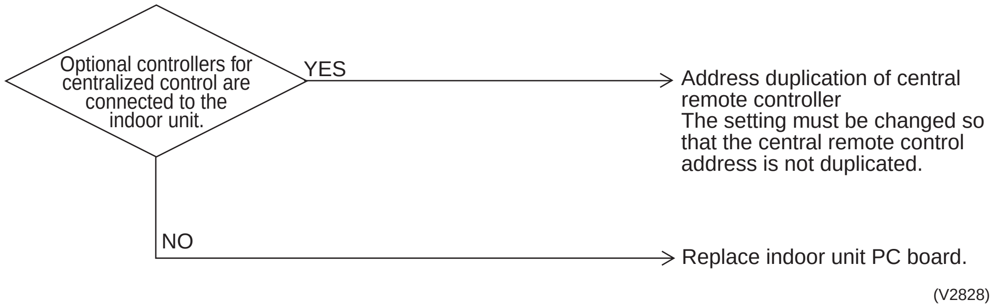
**Malfunction Decision Conditions**

**Supposed Causes**

- Address duplication of centralized Remote Control
- Defect of indoor unit PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

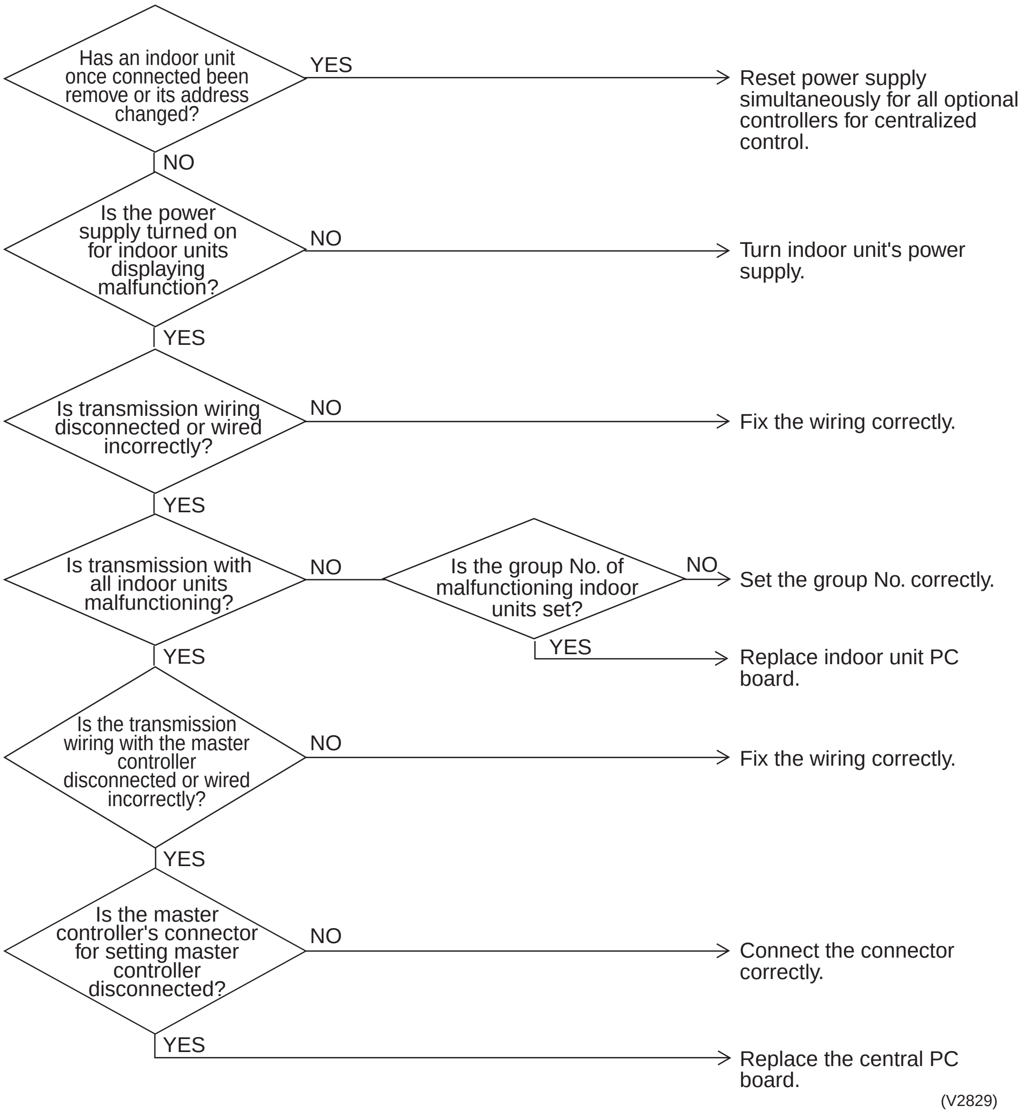


## 2.49 “UE” Malfunction of Transmission Between Central Remote Control and Indoor Unit

| | |
|---|---|
| **Remote Control Display** | UE |
| **Applicable Models** | All models of indoor units<br>Centralized controller |
| **Method of Malfunction Detection** | Microcomputer checks if transmission between indoor unit and centralized Remote Control is normal. |
| **Malfunction Decision Conditions** | When transmission is not carried out normally for a certain amount of time |
| **Supposed Causes** | ■ Malfunction of transmission between optional controllers for centralized control and indoor unit<br>■ Connector for setting master controller is disconnected.<br>■ Failure of PC board for centralized Remote Control<br>■ Defect of indoor unit PC board |

## Troubleshooting

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



# 2.50 “UF” Refrigerant System not Set, Incompatible Wiring/ Piping

**Remote Control Display** UF

**Applicable Models**
All models of indoor units
RXYQ5~48M

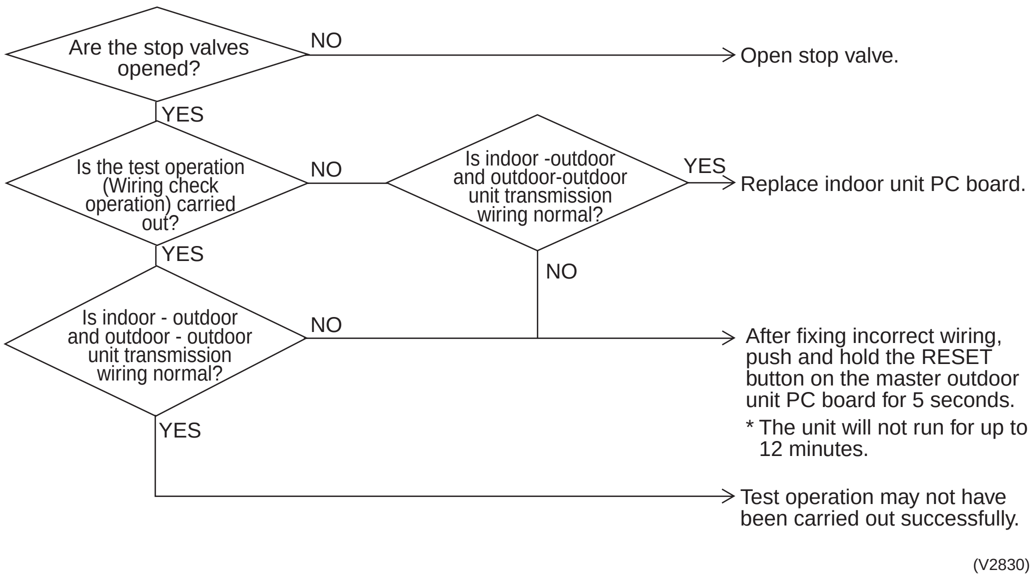
**Method of Malfunction Detection**

**Malfunction Decision Conditions**

**Supposed Causes**
- Improper connection of transmission wiring between outdoor unit and outdoor unit outside control adapter
- Failure to execute wiring check operation
- Defect of indoor unit PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2830)

**Note:** Test operation may not be successful if carried out after the outdoor unit has been off for more than 12 hours, or if it is not carried out after running all connected indoor units in the fan mode for at least an hour.

# 2.51 "UH" Malfunction of System, Refrigerant System Address Undefined

**Remote Control Display**

UH

**Applicable Models**

All models of indoor units
RXYQ5~48M

**Method of Malfunction Detection**

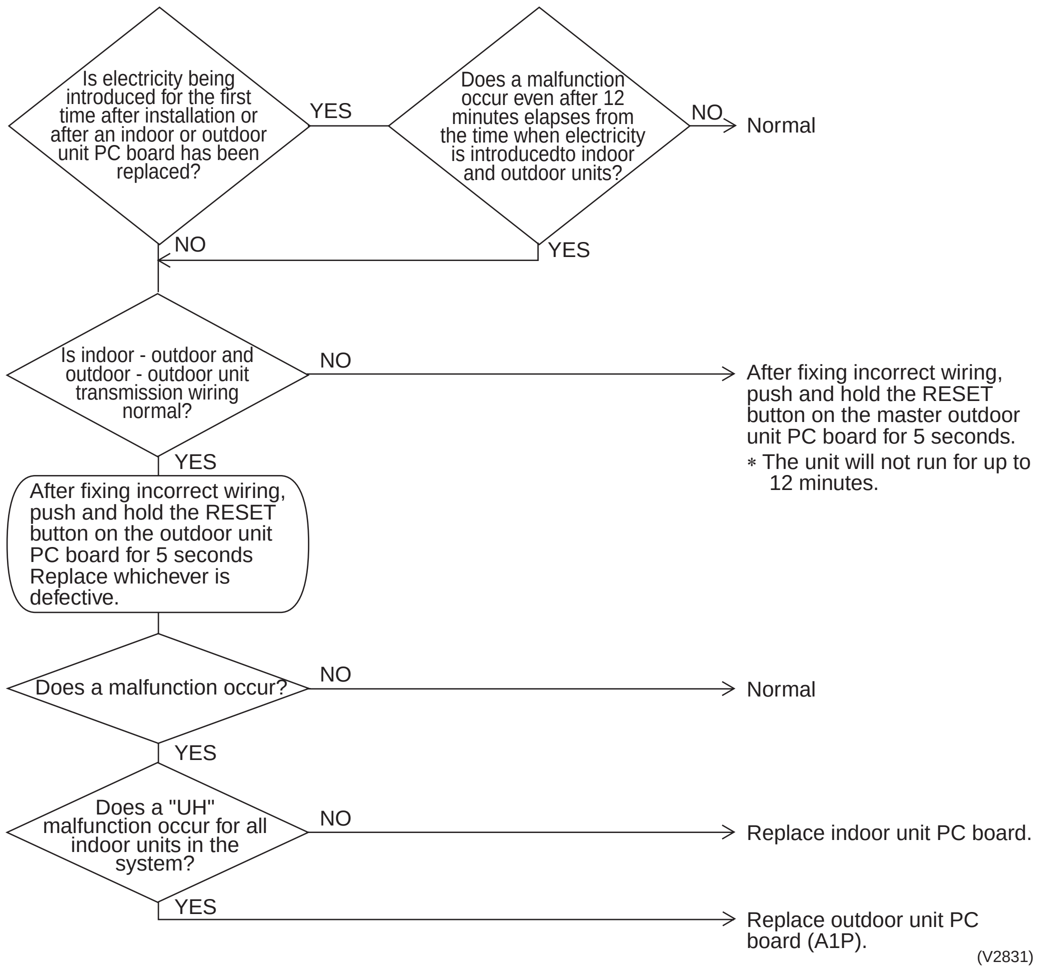
**Malfunction Decision Conditions**

**Supposed Causes**

- Improper connection of transmission wiring between outdoor unit and outdoor unit outside control adapter
- Defect of indoor unit PC board
- Defect of outdoor unit PC board (A1P)

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



# 3. Troubleshooting (OP: Central Remote Control)

## 3.1 "UE" Malfunction of Transmission Between Central Remote Control and Indoor Unit

**Remote Control Display**

UE

**Applicable Models**

All models of indoor units
RXYQ5~48M

**Method of Malfunction Detection**

Microcomputer checks if transmission between indoor unit and central Remote Control is normal.

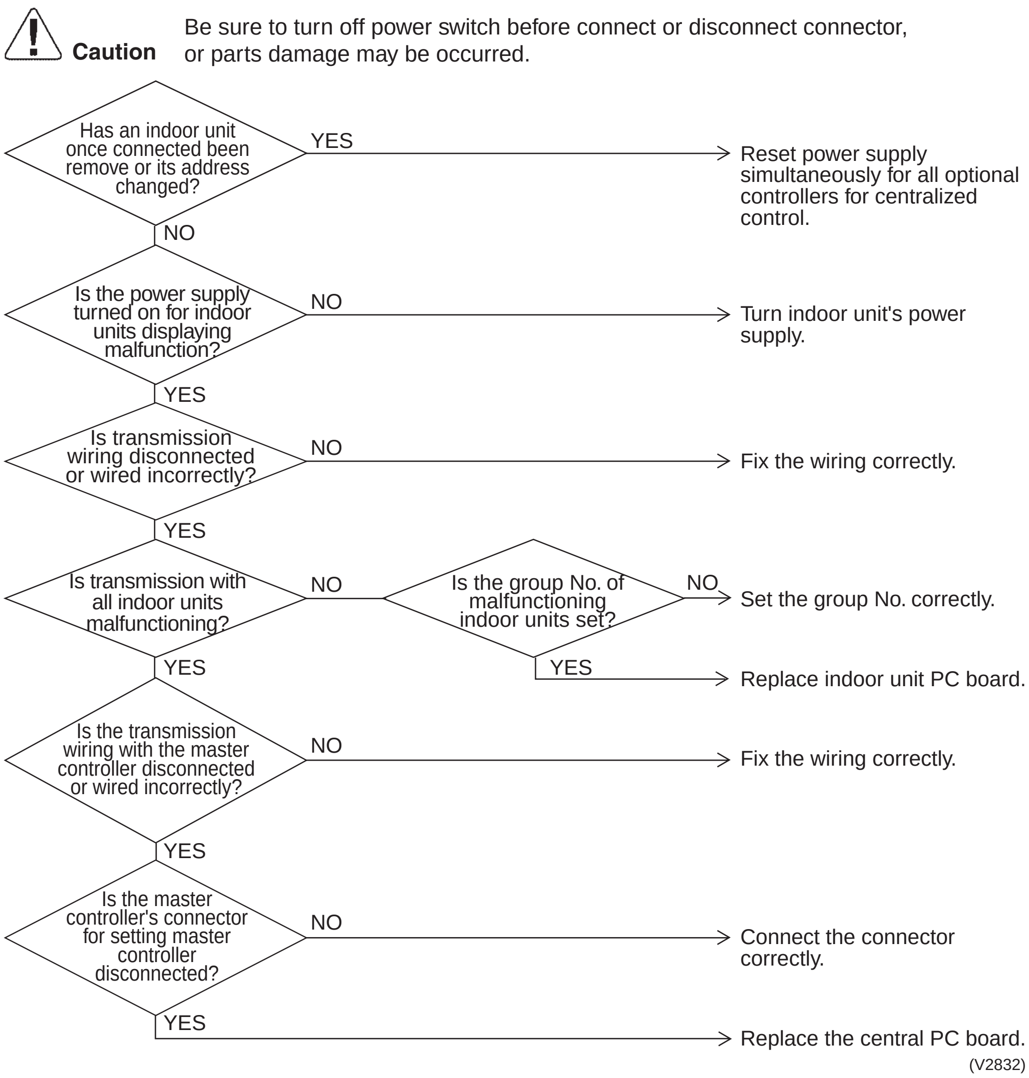
**Malfunction Decision Conditions**

When transmission is not carried out normally for a certain amount of time

**Supposed Causes**

- Malfunction of transmission between optional controllers for centralized control and indoor unit
- Connector for setting master controller is disconnected.
- Failure of PC board for central Remote Control
- Defect of indoor unit PC board

**Troubleshooting**



## 3.2 "M1" PC Board Defect

| | |
|---|---|
| **Remote Control Display** | M1 |
| **Applicable Models** | Centralized Remote Control |
| **Method of Malfunction Detection** | |
| **Malfunction Decision Conditions** | |
| **Supposed Causes** | ■ Defect of central Remote Control PC board |
| **Troubleshooting** | Replace the central Remote Control PC board. |

# 3.3 "M8" Malfunction of Transmission Between Optional Controllers for Centralized Control

**Remote Control Display**

M8

**Applicable Models**

Centralized Remote Control

**Method of Malfunction Detection**

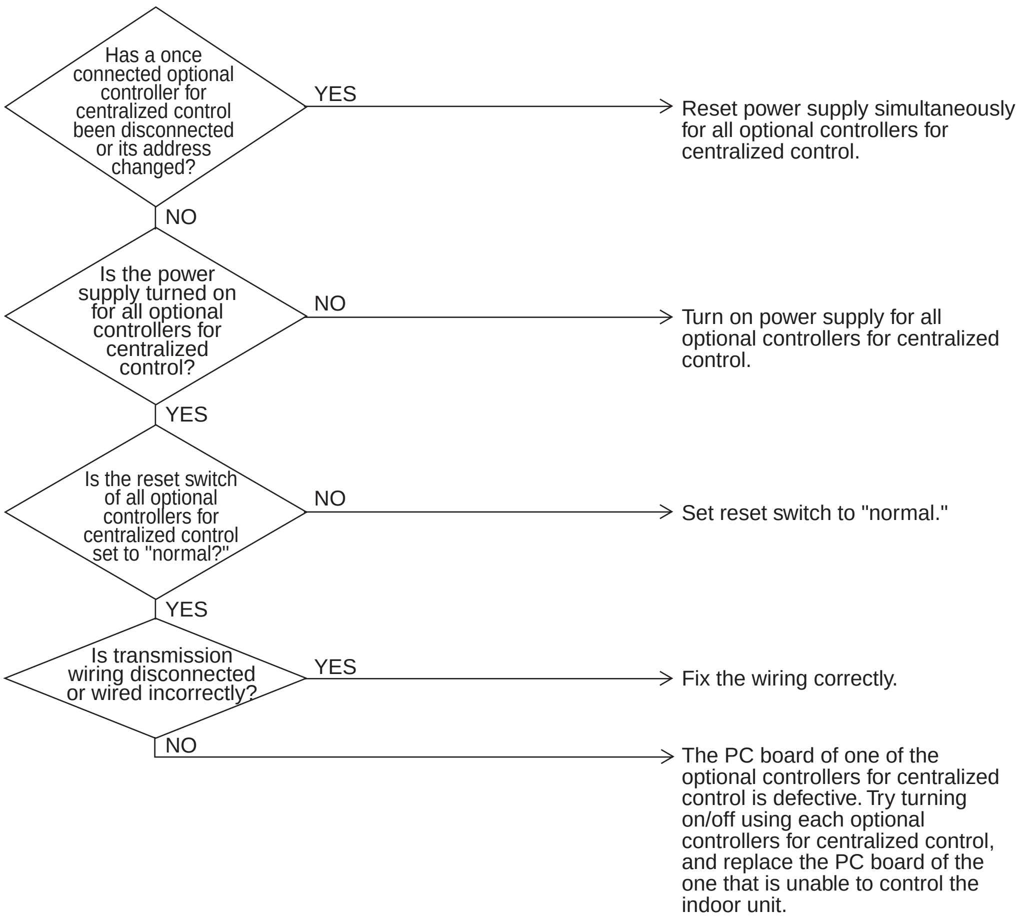
**Malfunction Decision Conditions**

**Supposed Causes**

- Malfunction of transmission between optional controllers for centralized control
- Defect of PC board of optional controllers for centralized control

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



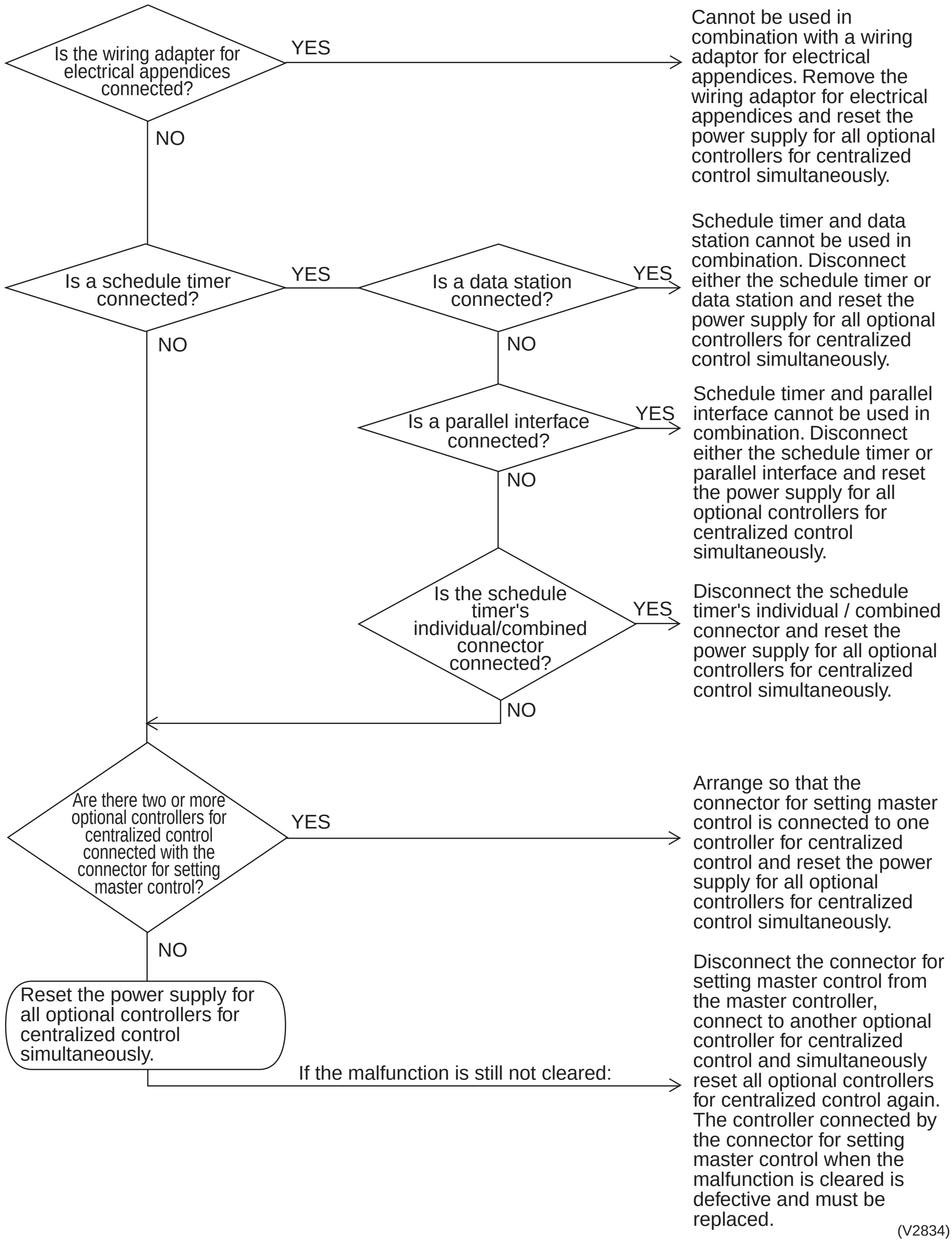

(V2833)

## 3.4 “MA” Improper Combination of Optional Controllers for Centralized Control

| | |
|---|---|
| **Remote Control Display** | MA |
| **Applicable Models** | Centralized Remote Control |
| **Method of Malfunction Detection** | |
| **Malfunction Decision Conditions** | |
| **Supposed Causes** | ■ Improper combination of optional controllers for centralized control<br>■ More than one master controller is connected<br>■ Defect of PC board of optional controller for centralized control |

## Troubleshooting

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



## 3.5 “MC” Address Duplication, Improper Setting

**Remote Control Display**

MC

**Applicable Models**

Central Remote Control

**Method of Malfunction Detection**

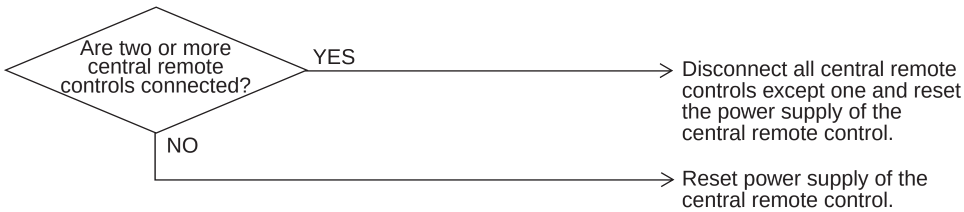
**Malfunction Decision Conditions**

**Supposed Causes**

- Address duplication of centralized Remote Control

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2835)

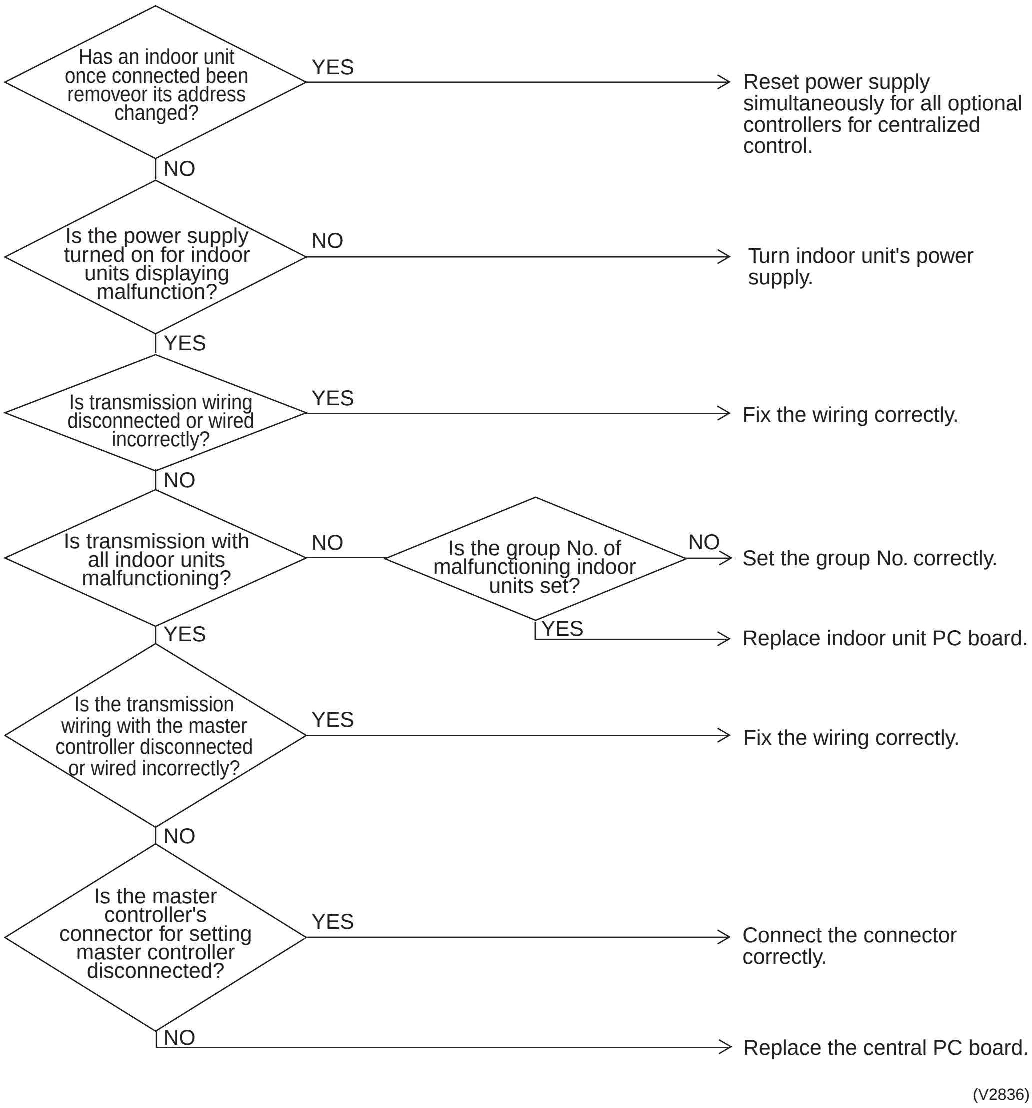
# 4. Troubleshooting (OP: Schedule Timer)

## 4.1 "UE" Malfunction of Transmission Between Central Remote Control and Indoor Unit

| | |
|---|---|
| **Remote Control Display** | UE |
| **Applicable Models** | Schedule timer |
| **Method of Malfunction Detection** | Microcomputer checks if transmission between indoor unit and centralized Remote Control is normal. |
| **Malfunction Decision Conditions** | When transmission is not carried out normally for a certain amount of time |
| **Supposed Causes** | ■ Malfunction of transmission between central Remote Control and indoor unit<br>■ Disconnection of connector for setting master controller (or individual/combined switching connector)<br>■ Defect of schedule timer PC board<br>■ Defect of indoor unit PC board |

## Troubleshooting

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



## 4.2 "M1" PC Board Defect

**Remote Control Display**

M1

**Applicable Models**

Schedule timer

**Method of Malfunction Detection**

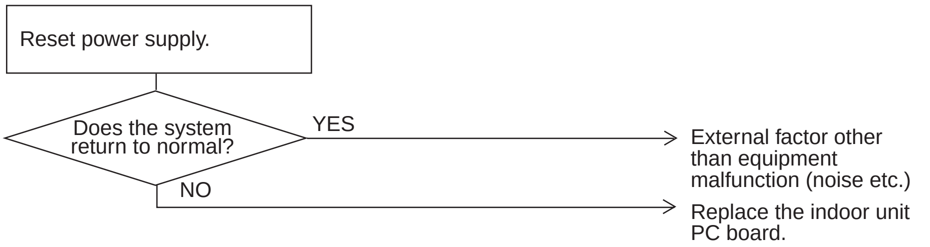
**Malfunction Decision Conditions**

**Supposed Causes**

- Defect of schedule timer PC board

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2837)

# 4.3 “M8” Malfunction of Transmission Between Optional Controllers for Centralized Control

**Remote Control Display**

M8

**Applicable Models**

All models of indoor units, schedule timer

**Method of Malfunction Detection**

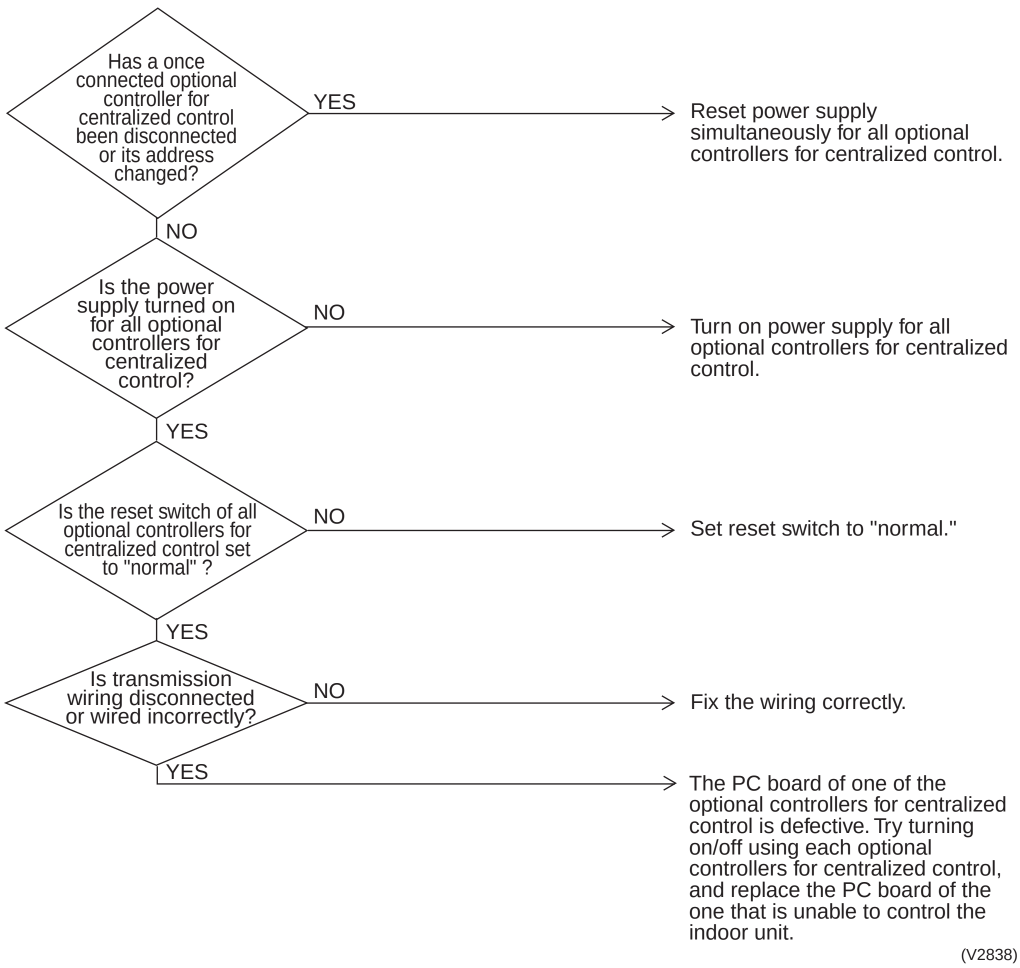
**Malfunction Decision Conditions**

**Supposed Causes**

- Malfunction of transmission between optional controllers for centralized control
- Defect of PC board of optional controllers for centralized control

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.

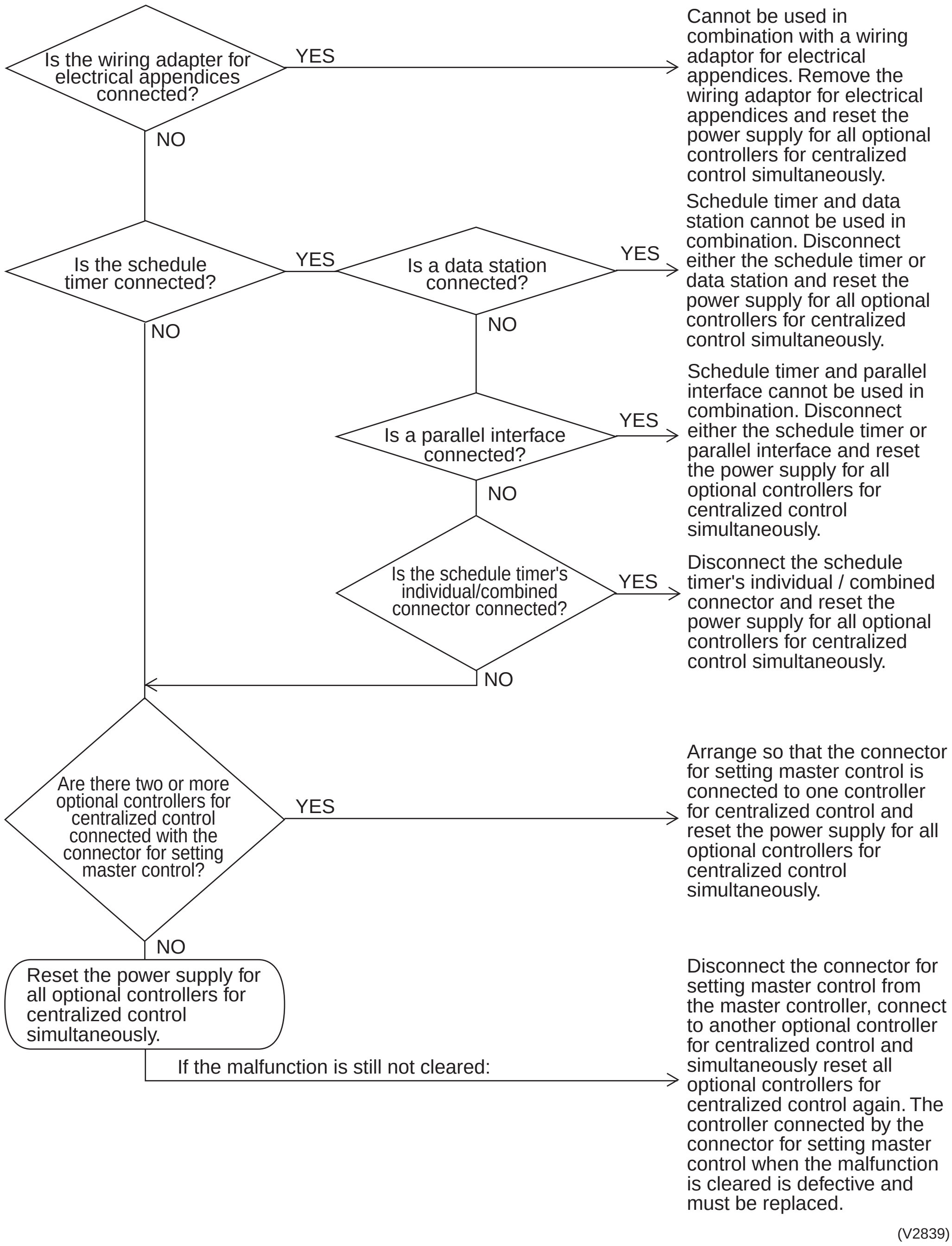


# 4.4 "MA" Improper Combination of Optional Controllers for Centralized Control

| | |
|---|---|
| **Remote Control Display** | MA |
| **Applicable Models** | All models of indoor units, schedule timer |
| **Method of Malfunction Detection** | |
| **Malfunction Decision Conditions** | |
| **Supposed Causes** | ■ Improper combination of optional controllers for centralized control<br>■ More than one master controller is connected.<br>■ Defect of PC board of optional controller for centralized control |

## Troubleshooting

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



## 4.5 "MC" Address Duplication, Improper Setting

**Remote Control Display**

MC

**Applicable Models**

All models of indoor units,
schedule timer

**Method of Malfunction Detection**

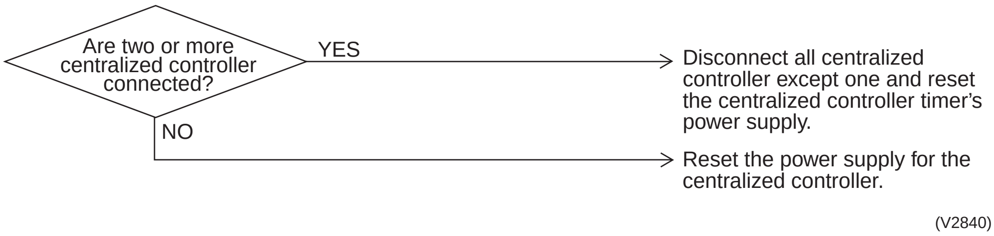
**Malfunction Decision Conditions**

**Supposed Causes**

- Address duplication of optional controller for centralized control

**Troubleshooting**

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



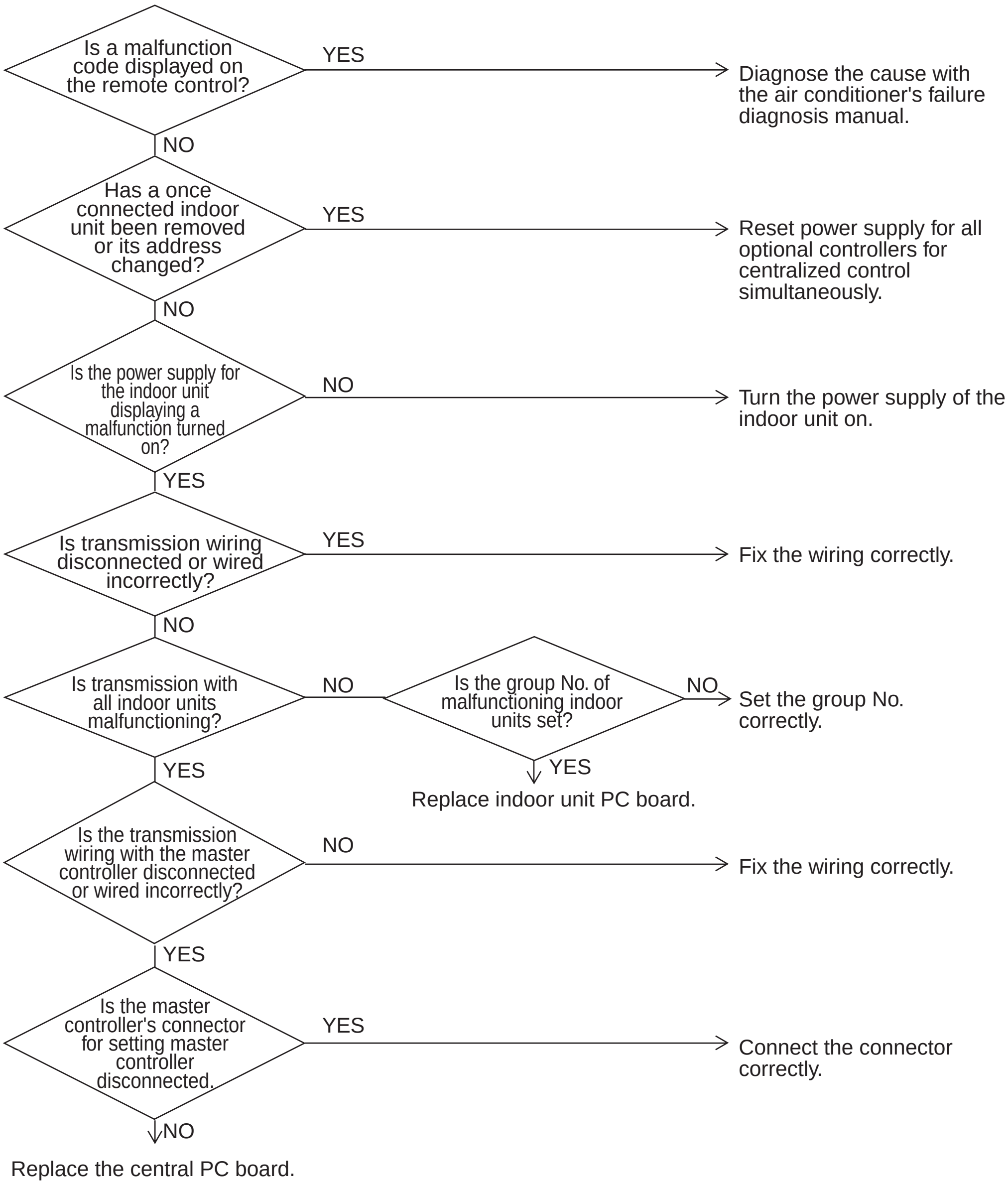
# 5. Troubleshooting (OP: Unified ON/OFF Controller)

## 5.1 Operation Lamp Blinks

| | |
|---|---|
| **Remote Control Display** | Operation lamp blinks |
| **Applicable Models** | All models of indoor units<br>Unified ON/OFF controller |
| **Method of Malfunction Detection** | |
| **Malfunction Decision Conditions** | |
| **Supposed Causes** | ■ Malfunction of transmission between optional controller and indoor unit<br>■ Connector for setting master controller is disconnected<br>■ Defect of unified ON/OFF controller<br>■ Defect of indoor unit PC board<br>■ Malfunction of air conditioner |

## Troubleshooting

**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




(V2841)

## 5.2 Display “Under Host Computer Integrate Control” Blinks (Repeats Single Blink)

**Remote Control Display**

“under host computer integrated control” (Repeats single blink)

**Applicable Models**

Unified ON/OFF controller
Central controller, Schedule timer

**Method of Malfunction Detection**

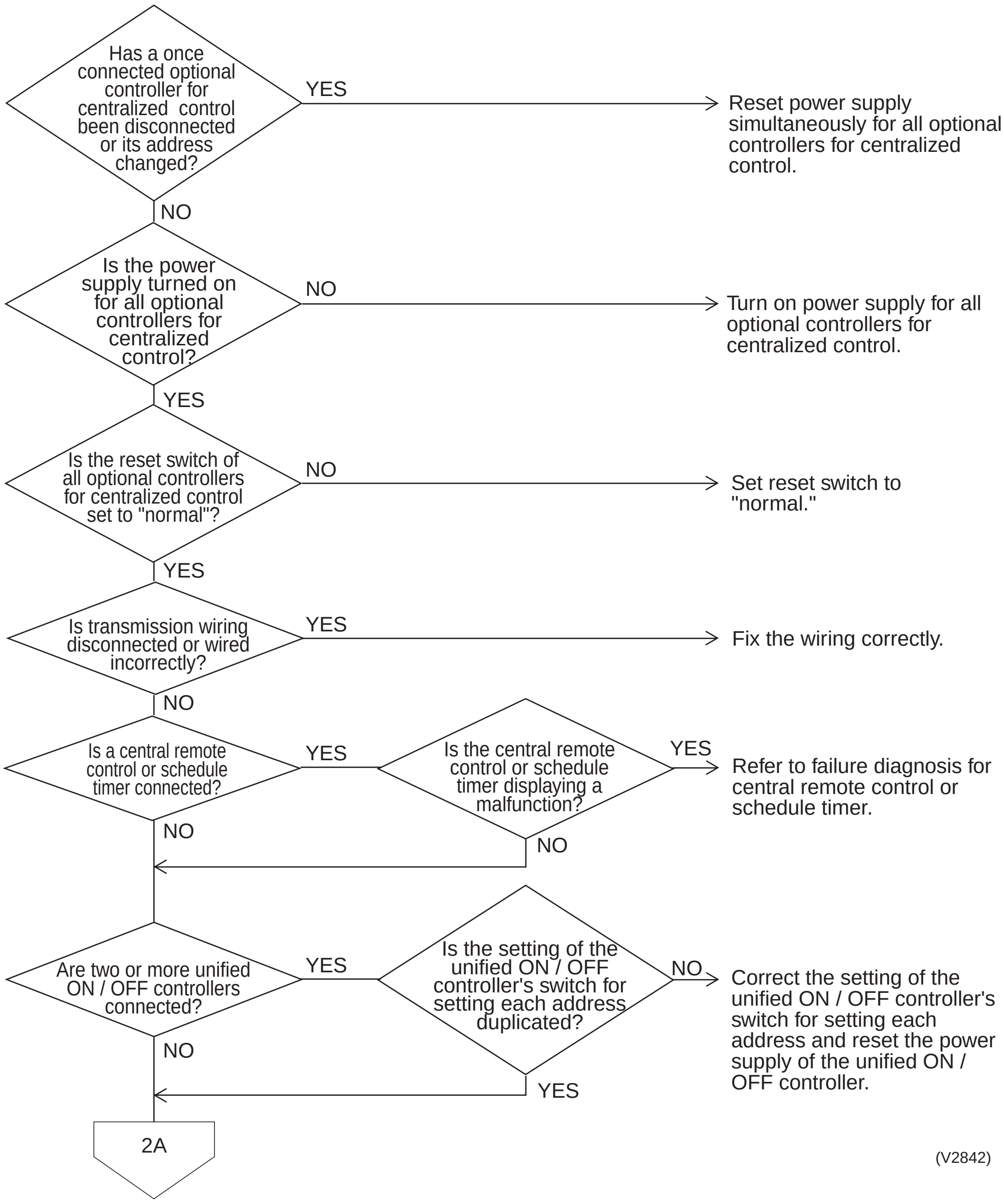
**Malfunction Decision Conditions**

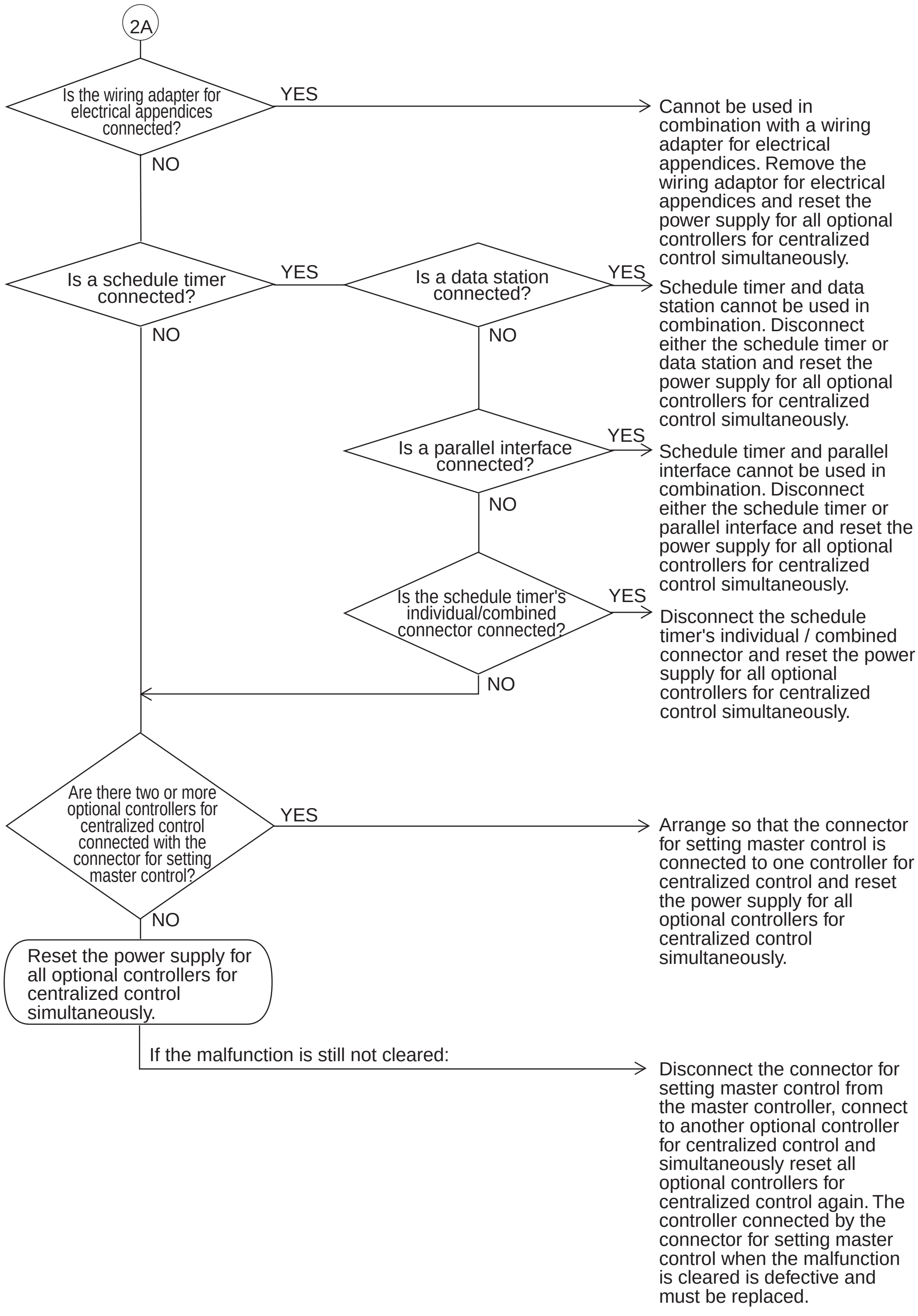
**Supposed Causes**

- Address duplication of central Remote Control
- Improper combination of optional controllers for centralized control
- Connection of more than one master controller
- Malfunction of transmission between optional controllers for centralized control
- Defect of PC board of optional controllers for centralized control

## Troubleshooting

⚠ **Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.




2A
Is the wiring adapter for electrical appendices connected?
YES
Cannot be used in combination with a wiring adapter for electrical appendices. Remove the wiring adaptor for electrical appendices and reset the power supply for all optional controllers for centralized control simultaneously.
NO
Is a schedule timer connected?
YES
Is a data station connected?
YES
Schedule timer and data station cannot be used in combination. Disconnect either the schedule timer or data station and reset the power supply for all optional controllers for centralized control simultaneously.
NO
NO
Is a parallel interface connected?
YES
Schedule timer and parallel interface cannot be used in combination. Disconnect either the schedule timer or parallel interface and reset the power supply for all optional controllers for centralized control simultaneously.
NO
Is the schedule timer's individual/combined connector connected?
YES
Disconnect the schedule timer's individual / combined connector and reset the power supply for all optional controllers for centralized control simultaneously.
NO
Are there two or more optional controllers for centralized control connected with the connector for setting master control?
YES
Arrange so that the connector for setting master control is connected to one controller for centralized control and reset the power supply for all optional controllers for centralized control simultaneously.
NO
Reset the power supply for all optional controllers for centralized control simultaneously.
If the malfunction is still not cleared:
Disconnect the connector for setting master control from the master controller, connect to another optional controller for centralized control and simultaneously reset all optional controllers for centralized control again. The controller connected by the connector for setting master control when the malfunction is cleared is defective and must be replaced.

(V2843)

# 5.3 Remote Control Display "Under Host Computer Integrate Control" Blinks (Repeats Double Blink)

**Remote Control Display**

"under host computer integrated control" (Repeats double blink)

**Applicable Models**

Unified ON/OFF controller

**Method of Malfunction Detection**

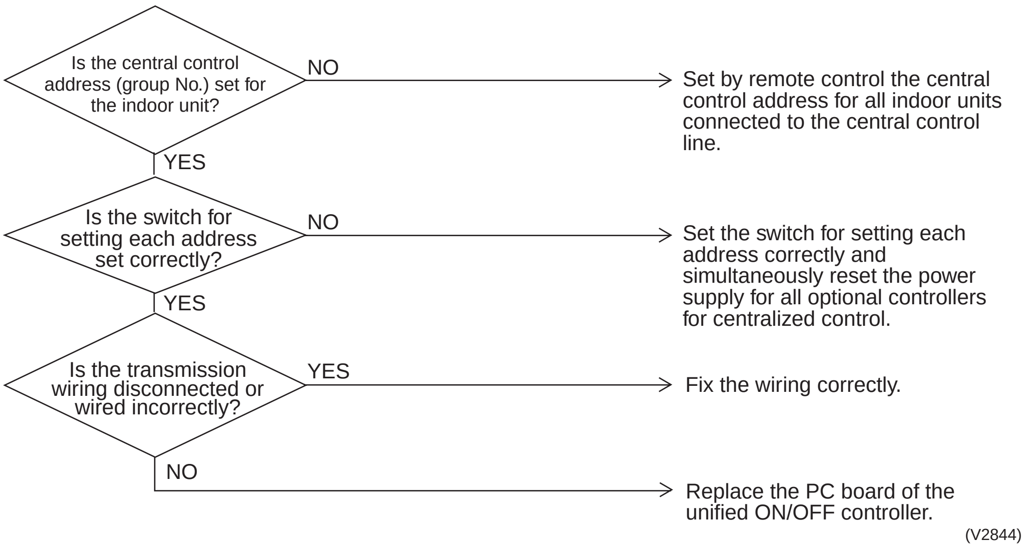
**Malfunction Decision Conditions**

**Supposed Causes**

- Central control address (group No.) is not set for indoor unit.
- Improper address setting
- Improper wiring of transmission wiring

**Troubleshooting**

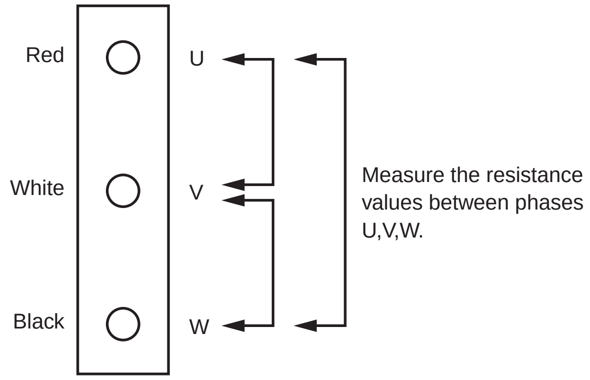
**Caution** Be sure to turn off power switch before connect or disconnect connector, or parts damage may be occurred.



**Check No. 8**

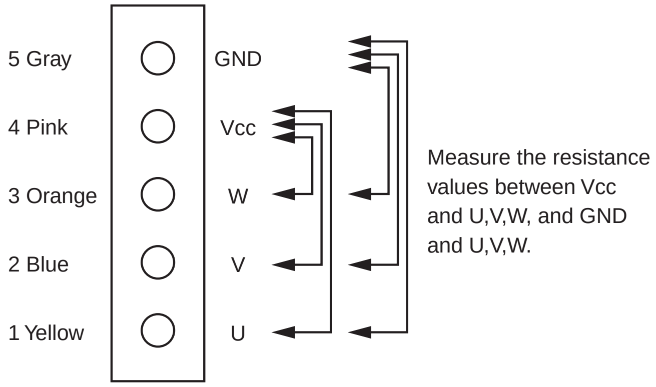
**Check on connector of fan motor (Power supply cable)**

(1) Turn off the power supply.
Measure the resistance between phases of U,V,W at the motor side connectors (three-core wire) to check that the values are balanced and there is no short circuiting, while connector or relay connector is disconnected.




**Check No. 9**

(1) Turn off the power supply.
(2) Measure the resistance between Vcc and each phase of U,V,W , and GND and each phase at the motor side connectors (five-core wire) to check that the values are balanced within the range of ± 20 %, while connector or relay connector is disconnected.

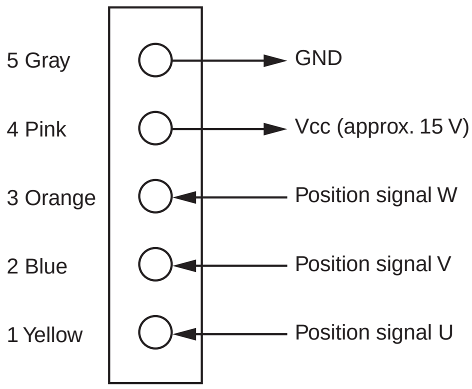


## Check No. 12

**Check on pulse input of position signal of fan inverter PCB**

(1) Disconnect the connector X2A while power supply OFF and operation OFF.
(2) Is the voltage between pins No. 4 and 5 on X2A approx. 15 V after power supply is turned on?
(3) Connect the connector X2A while power supply OFF and operation OFF.
(4) Check below conditions when the fan motor is rotated one turn manually under the condition of operation OFF after power supply is turned ON.
Are the pulse (approx. 0 V and 5 V) generated 4 times between No. 1 and 5 on X2A?
Are the pulse (approx. 0 V and 5 V) generated 4 times between No. 2 and 5 on X2A?
Are the pulse (approx. 0 V and 5 V) generated 4 times between No. 3 and 5 on X2A?

| |
|---|
| The condition (2) dose not appear → Faulty PCB → Replacing the PCB<br>The conditions (4) do not appear → Faulty hall IC → Replacing fan motor of outdoor unit |



# Part 7
# Replacement procedure for INV compressor, VRV II (RXYQ5M to 48M)

# 1. Replacement procedure for INV compressor, VRV II (RXYQ5M-48M)

## 1.1 Replacement procedure

(1) Collect the refrigerant by using refrigerant recovery unit.
Since the setting on outdoor unit PCB is required for refrigerant recovery, refer to the warning plate "Precautions in service work" attached on the switch box cover.)

(2) Remove the sound insulator mat covering the faulty compressor, and disconnect the power cable from terminal board of the compressor.

(3) Disconnect the brazing sections of suction pipe and discharge pipe by using brazing torch after the refrigerant has been collected completely.

(4) Pinch the oil pressure equalizing pipe of the faulty compressor at the lower part of the brazed joint as shown in figure 1, and cut it between the pinched section and brazed joint in order to prevent residual oil from discharging.

(5) Remove three bolts at cushion rubber section to take out the faulty compressor outside the unit.

(6) Check that no oil remains in the oil pressure equalizing pipe as shown in figure 2, then remove the cut pipe from the brazed joint with brazing torch.

(7) Install the new compressor in the unit.
(Be sure to insert the cushion rubbers before tightening the fixing bolts of compressor.)

(8) Remove the rubber caps put on the suction and discharge pipe of the new compressor to release the sealing nitrogen gas.
(Take note that oil may spout due to the pipe inside pressure if the plug put on the equalizing seat is removed before removing of rubber cap.)

(9) Remove the plug put on the equalizing seat of the new compressor.

(10) Install the outlet pipe on the equalizing seat of the new compressor.

(11) Braze the equalizing seat outlet pipe to the oil pressure equalizing pipe with brazing torch.
* Since an O-ring is put in the equalizing seat, be sure to maintain the parts around O-ring in cool.

(12) Braze the suction and discharge pipe with brazing torch to the compressor.

(13) Conduct air tight test to check the piping system is free from leakage.

(14) Connect power cable to the terminal board of compressor and cover the compressor with sound insulator mat.

(15) Conduct vacuum drying.
(Since the setting on outdoor unit PCB is required for vacuum drying, refer to the warning plate “Precautions in service work” attached on the switch box cover.)

(16)Charge refrigerant after the completion of vacuum drying, and check the function of compressor with cooling or heating operation.

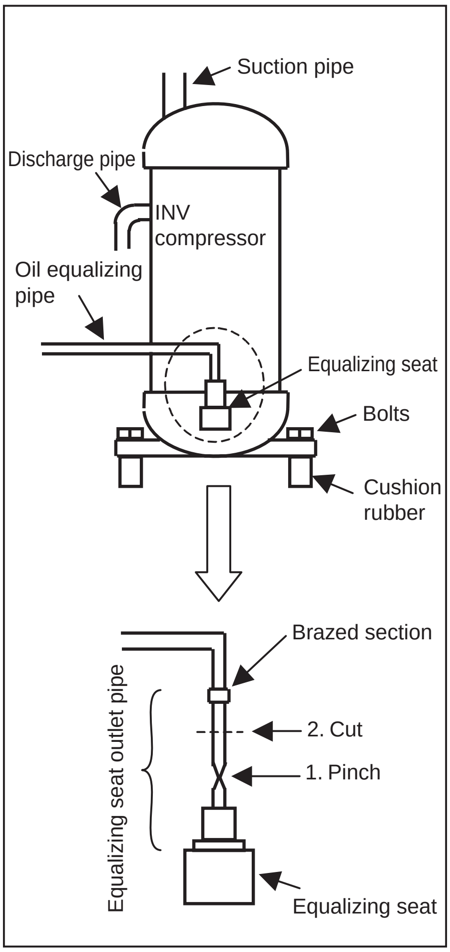



Fig. 1

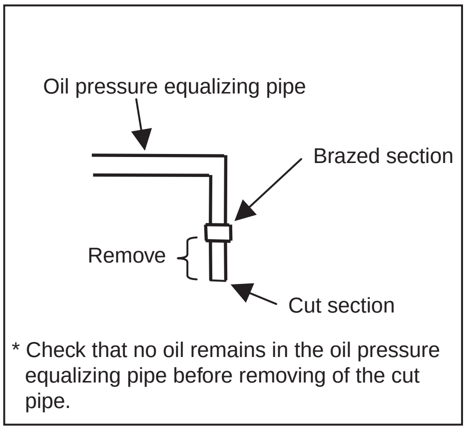


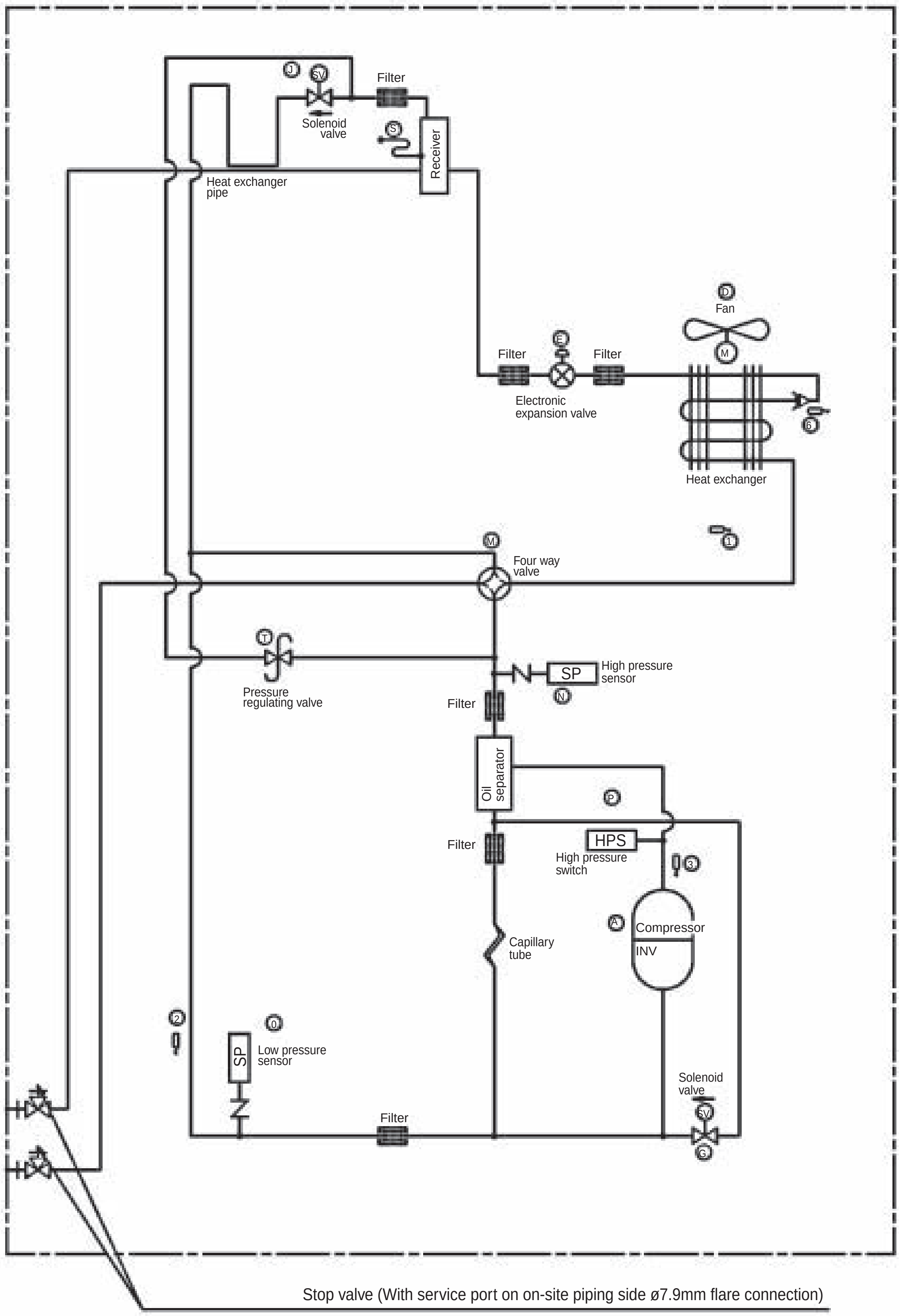

Fig. 2

# Part 8 Appendix

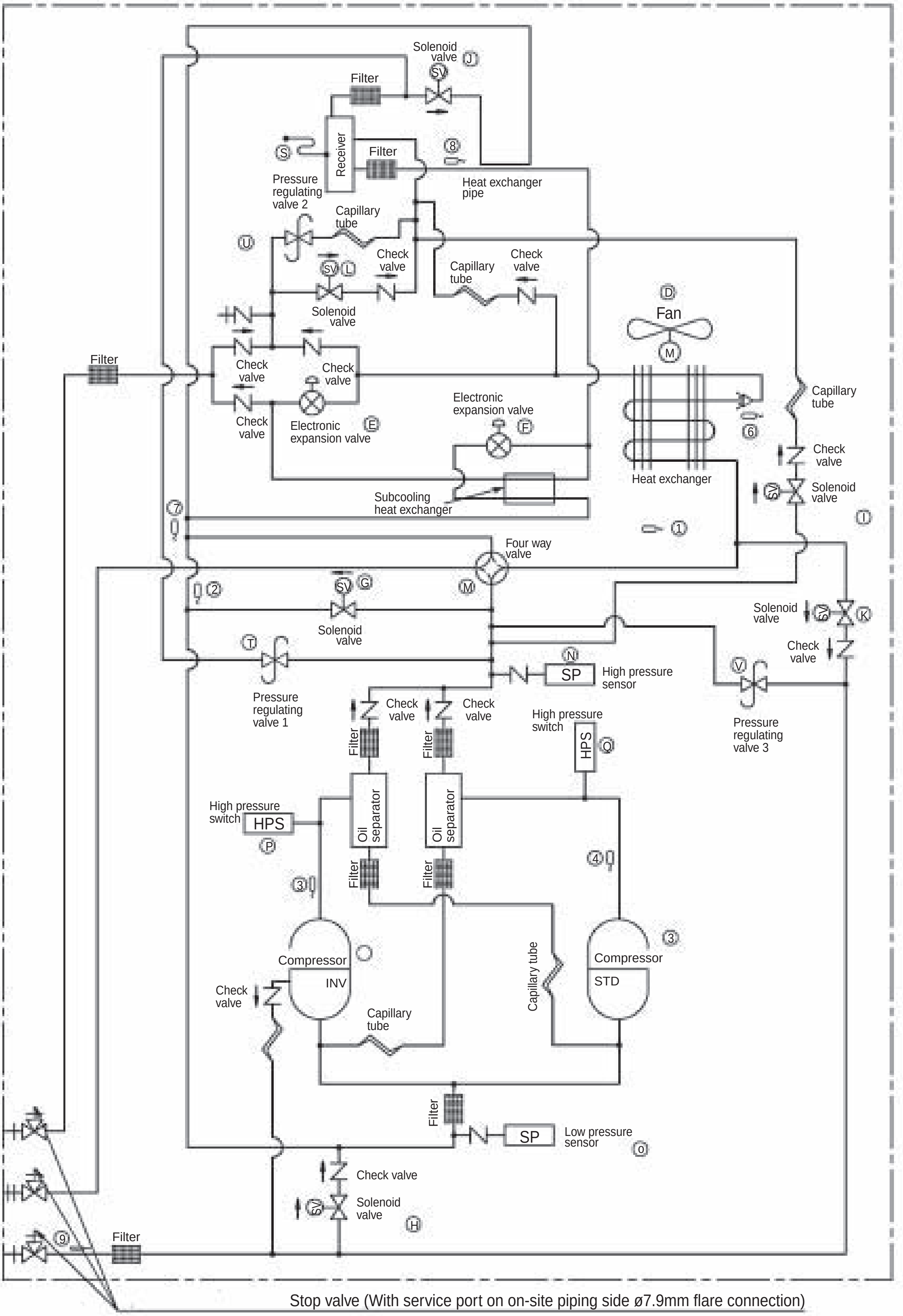
# 1. Piping Diagrams

## 1.1 Outdoor Unit

**RXYQ5MY1B**

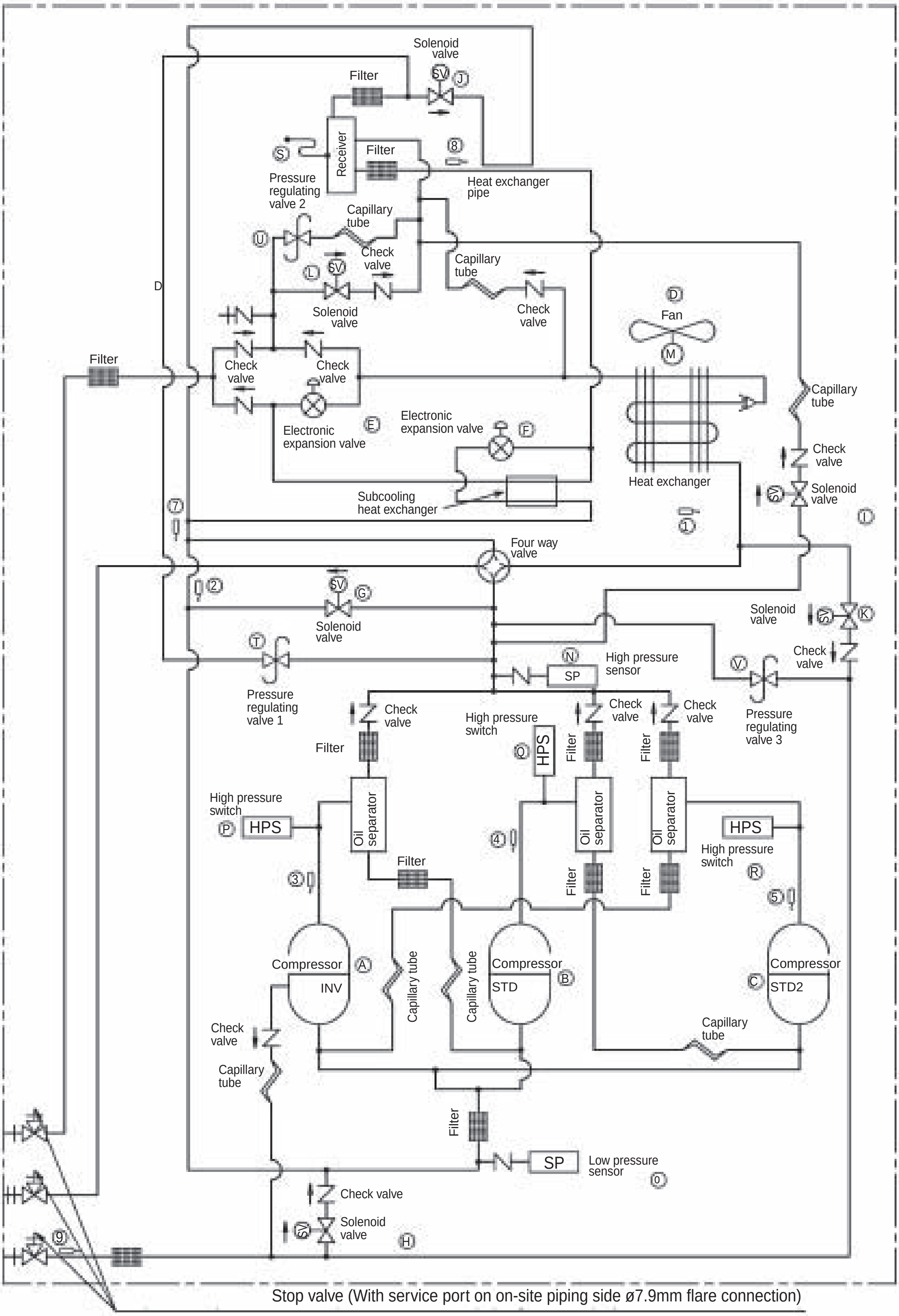


## RXYQ8MY1B
## RXYQ10MY1B
## RXYQ12MY1B




4D040338A

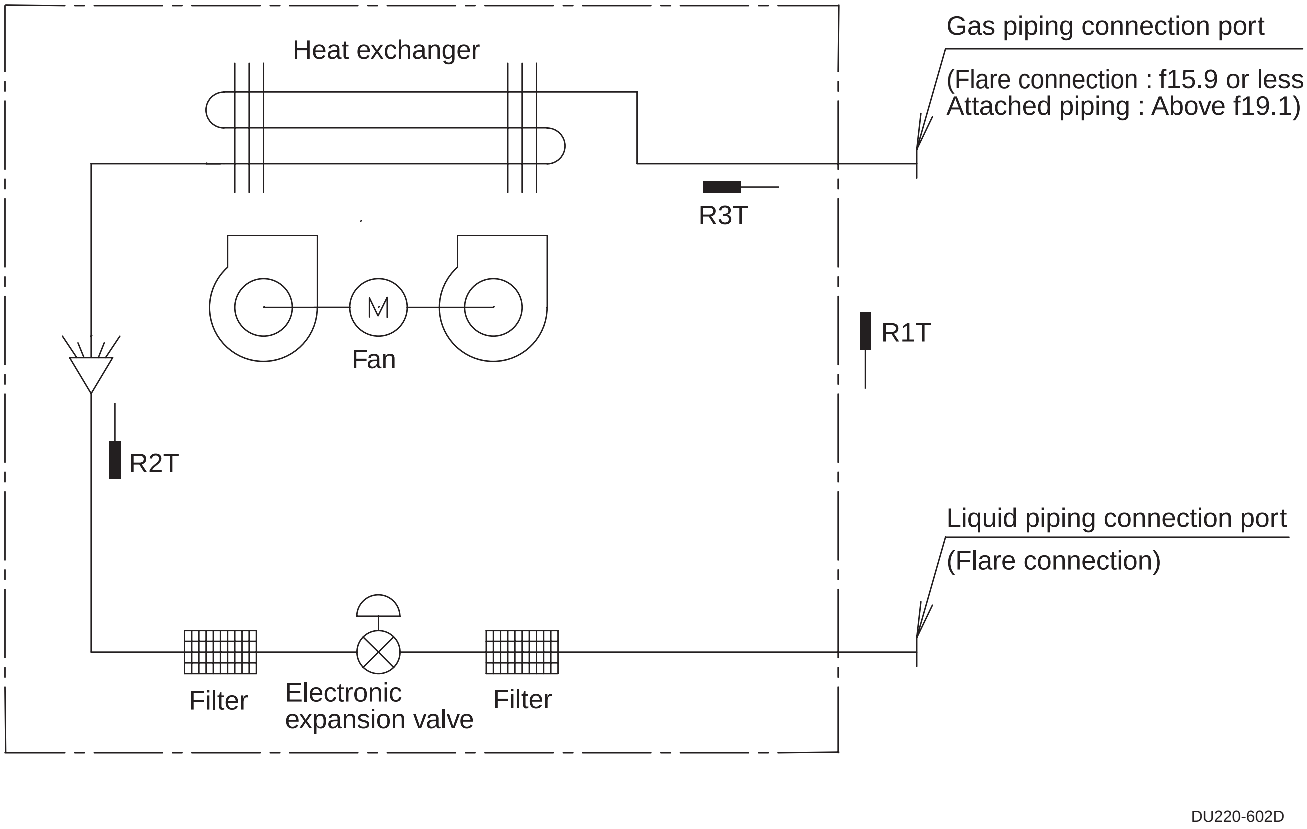
## RXYQ14MY1B
## RXYQ16MY1B




4D040339A

## 1.2 Indoor Unit

**FXCQ, FXZQ, FXFQ, FXKQ, FXSQ, FXMQ, FXHQ, FXAQ, FXLQ, FXNQ**




R1T : Thermistor for suction air temperature
R2T : Thermistor for liquid line temperature
R3T : Thermistor for gas line temperature

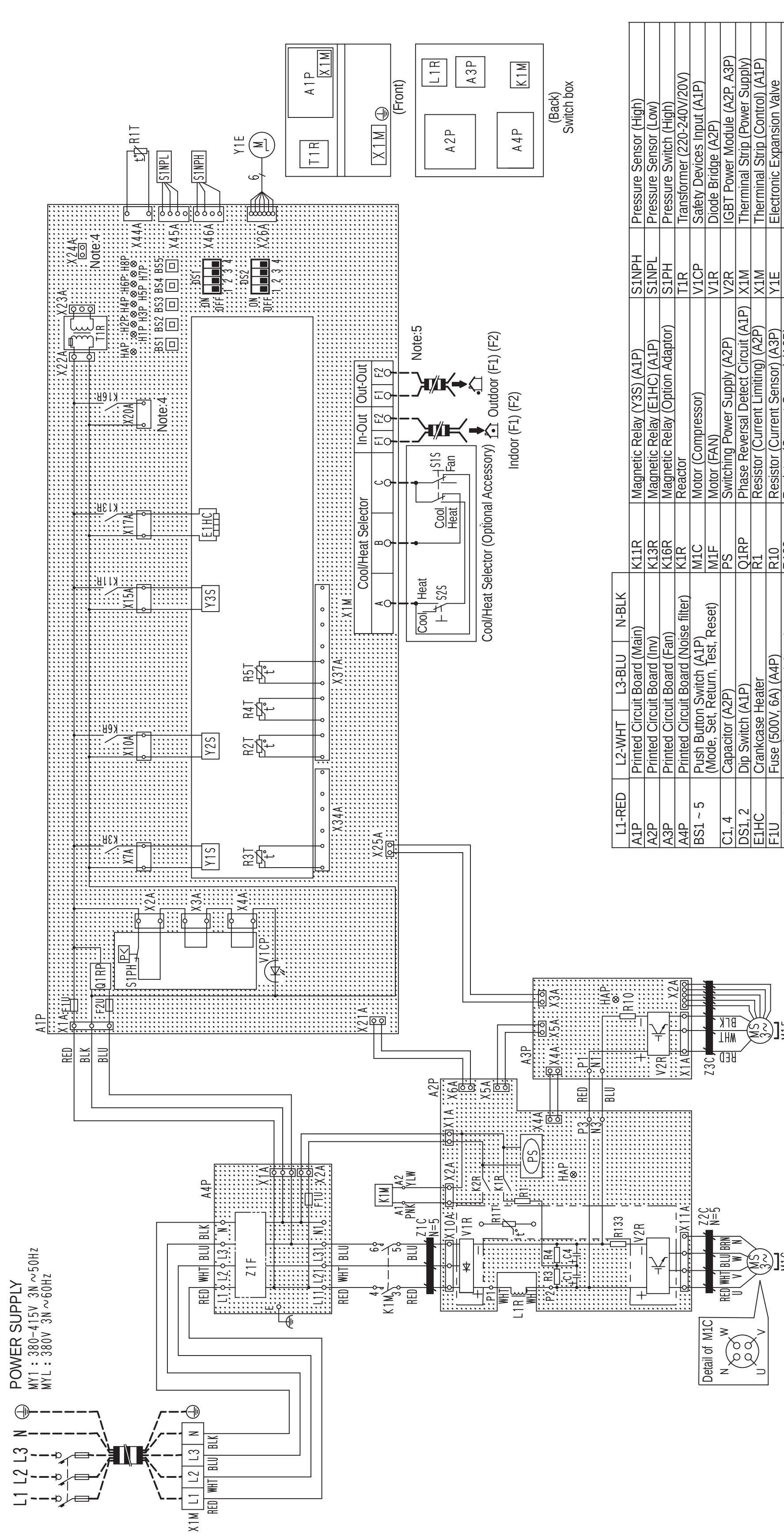
(mm)

| Capacity | GAS | Liquid |
|---|---|---|
| 20 / 25 / 32 / 40 / 50M | ϕ12.7 | ϕ6.4 |
| 63 / 80 / 100 / 125M | ϕ15.9 | ϕ9.5 |
| 200M | ϕ19.1 | ϕ9.5 |
| 250M | ϕ22.2 | ϕ9.5 |

# 2. Wiring Diagrams for Reference

## 2.1 Outdoor Unit

**RXYQ5MY1B**

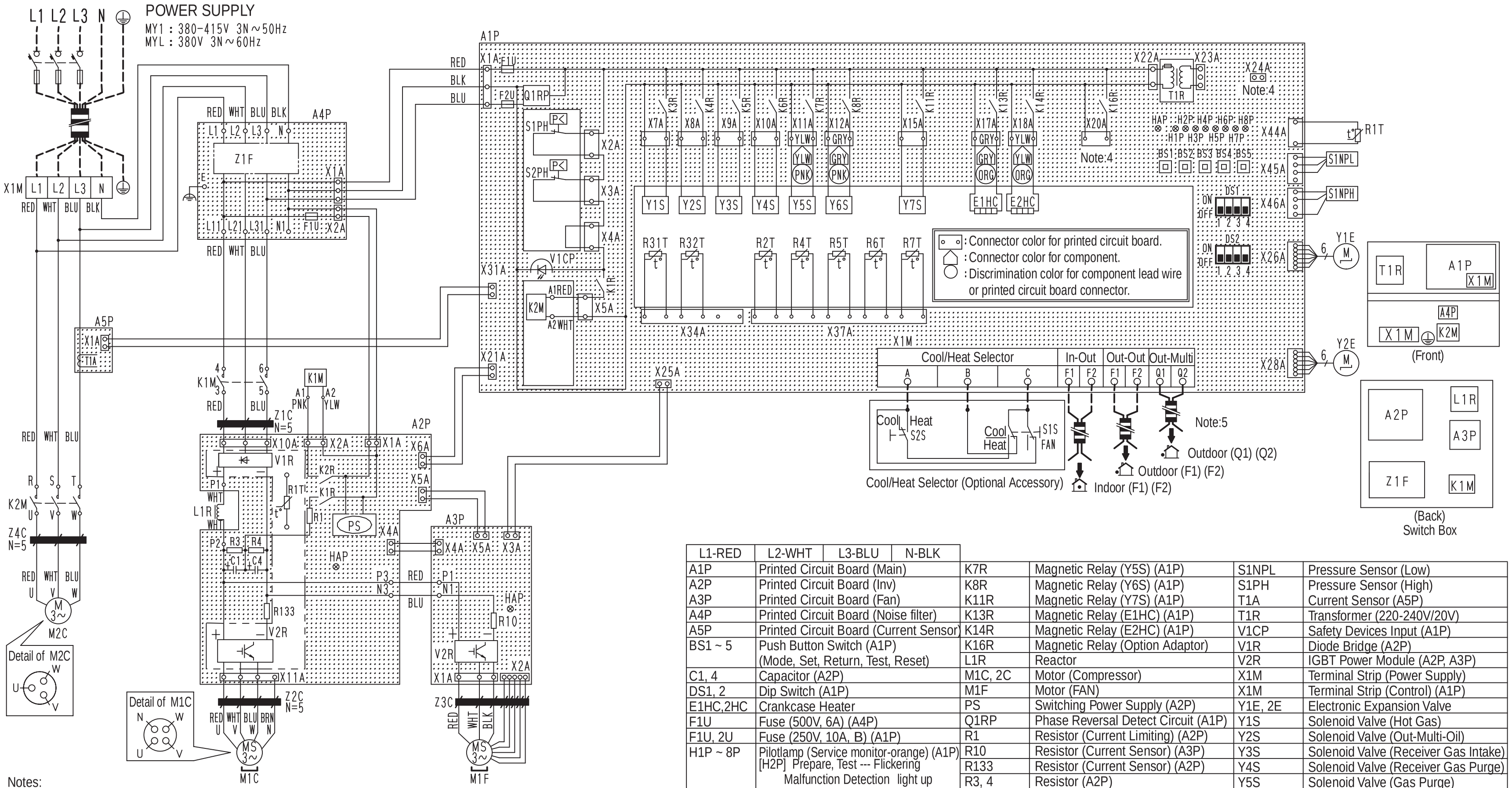



3D038590

| L1-RED | L2-WHT | L3-BLU | N-BLK | | |
|---|---|---|---|---|---|
| A1P | Printed Circuit Board (Main) | K11R | Magnetic Relay (Y3S) (A1P) | S1NPH | Pressure Sensor (High) |
| A2P | Printed Circuit Board (Inv) | K13R | Magnetic Relay (E1HC) (A1P) | S1NPL | Pressure Sensor (Low) |
| A3P | Printed Circuit Board (Fan) | K16R | Magnetic Relay (Option Adaptor) | S1PH | Pressure Switch (High) |
| A4P | Printed Circuit Board (Noise filter) | K1R | Reactor | T1R | Transformer (220-240V/20V) |
| BS1 ~ 5 | Push Button Switch (A1P) (Mode, Set, Return, Test, Reset) | M1C | Motor (Compressor) | V1CP | Safety Devices Input (A1P) |
| | | M1F | Motor (FAN) | V1R | Diode Bridge (A2P) |
| C1, 4 | Capacitor (A2P) | PS | Switching Power Supply (A2P) | V2R | IGBT Power Module (A2P, A3P) |
| DS1, 2 | Dip Switch (A1P) | Q1RP | Phase Reversal Detect Circuit (A1P) | X1M | Therminal Strip (Power Supply) |
| E1HC | Crankcase Heater | R1 | Resistor (Current Limiting) (A2P) | X1M | Therminal Strip (Control) (A1P) |
| F1U | Fuse (500V, 6A) (A4P) | R10 | Resistor (Current Sensor) (A3P) | Y1E | Electronic Expansion Valve |
| F1U, 2U | Fuse (250V, 10A, B) (A1P) | R133 | Resistor (Current Sensor) (A2P) | Y1S | Solenoid Valve (Hot Gas) |
| H1P ~ 8P | Pilotlamp (Service monitor-orange) (A1P) | R3, 4 | Resistor (A2P) | Y2S | Solenoid Valve (Receiver Gas Purge) |
| | [H2P] Prepare, Test --- Flickering | R1T | Thermistor (Fin) (A2P | Y3S | Solenoid Valve (4 Way Valve) |
| | Malfunction Detection light up | R1T | Thermistor (Air) (A1P) | Z1C~3C | Noise Filter (Ferrite Core) |
| HAP | Pilotlamp (Service monitor-green) (A1P~3P) | R2T | Thermistor (Suction) | Z1F | Noise Filter (With Surge Absorber) |
| K1M | Magnetic contactor (M1C) | R3T | Thermistor (M1C Discharge) | | |
| K1R | Magnetic Relay (A2P) | R4T | Thermistor (Heat exc. Deicer) | Cool/Heat Selector (KRC19-26A) | |
| K2R | Magnetic Relay (K1M) (A2P) | R5T | Thermistor (Heat exc. Outlet) | S1S | Selector Switch (Fan/Cool • Heat) |
| K3R | Magnetic Relay (Y1S) (A1P) | R6T | Thermistor (Liq. Pipe Receiver) | S2S | Selector Switch (Cool/Heat) |
| K6R | Magnetic Relay (Y2S) (A1P) | R7T | Thermistor (Oil Pipe) | | |

Notes:
1. This wiring diagram is applied only to the outdoor unit.
2. - - - - :Field wiring.
3. ▭▭▭ : Terminal Strip ⊙⊙ : Connector -o- : Terminal ⏚ : Protective Earth (Screw)
4. When using the option adaptor, refer to the installation manual.
5. Refer to the installation manual, for connection wiring to indoor outdoor Transmission F1 • F2 Outdoor-Outdoor Transmission F1 • F2
6. Refer to "Operation Caution Label" (On Switch box Cover), How to use BS1 ~ BS5 and DS1 • 2 Switch.
7. When operating, don't short circuit for protection device. (S1PH)
8. Colors BLK:Black RED:Red BLU:Blue WHT:White PNK:Pink YLW:Yellow BRN:Brown GRY:Gray GRN:Green ORG:Orange

## RXYQ8MY1B
## RXYQ10MY1B
## RXYQ12MY1B

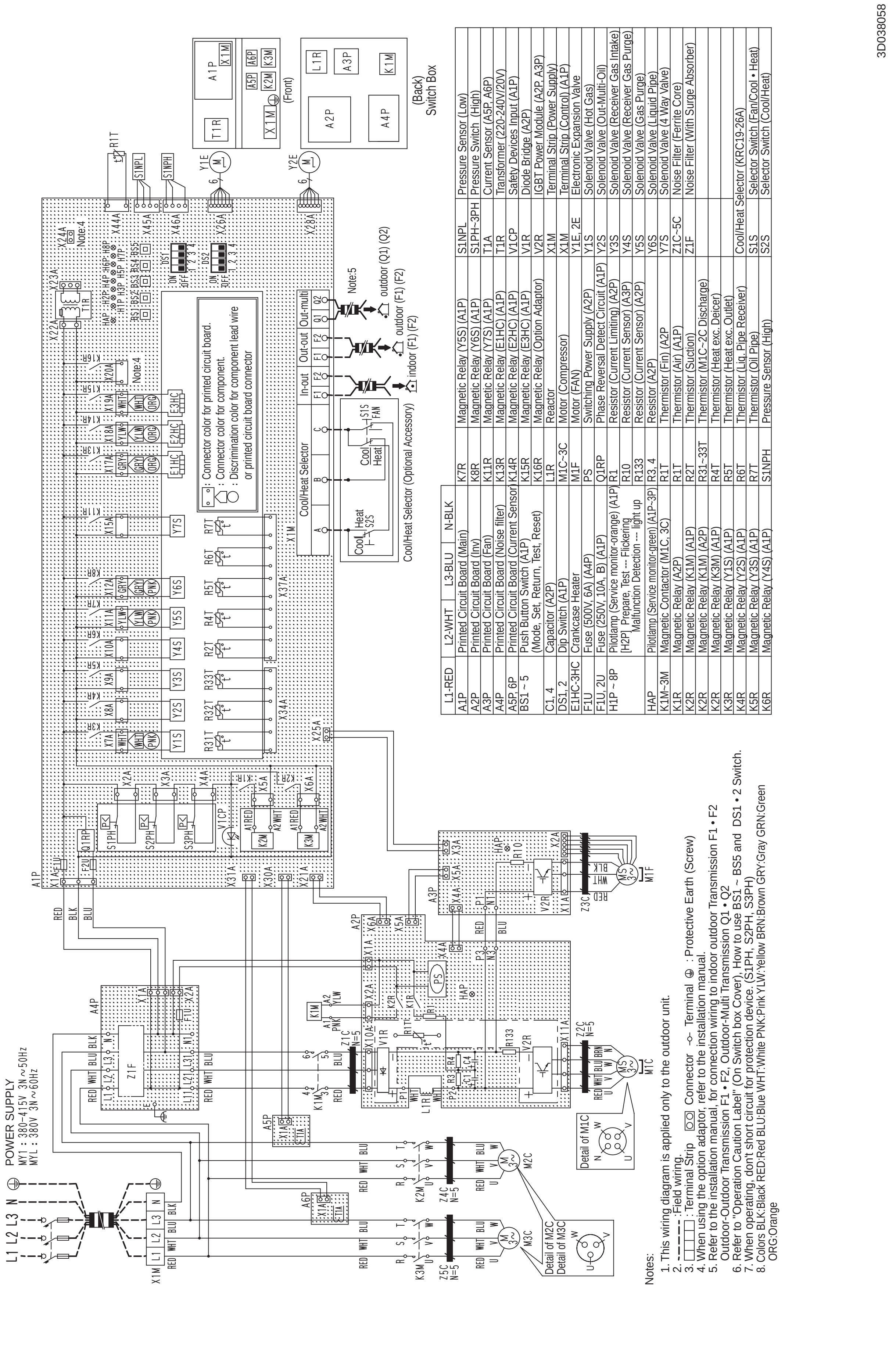



| L1-RED | L2-WHT | L3-BLU | N-BLK | | | | |
|---|---|---|---|---|---|---|---|
| A1P | Printed Circuit Board (Main) | K7R | Magnetic Relay (Y5S) (A1P) | S1NPL | Pressure Sensor (Low) | | |
| A2P | Printed Circuit Board (Inv) | K8R | Magnetic Relay (Y6S) (A1P) | S1PH | Pressure Sensor (High) | | |
| A3P | Printed Circuit Board (Fan) | K11R | Magnetic Relay (Y7S) (A1P) | T1A | Current Sensor (A5P) | | |
| A4P | Printed Circuit Board (Noise filter) | K13R | Magnetic Relay (E1HC) (A1P) | T1R | Transformer (220-240V/20V) | | |
| A5P | Printed Circuit Board (Current Sensor) | K14R | Magnetic Relay (E2HC) (A1P) | V1CP | Safety Devices Input (A1P) | | |
| BS1 ~ 5 | Push Button Switch (A1P) (Mode, Set, Return, Test, Reset) | K16R | Magnetic Relay (Option Adaptor) | V1R | Diode Bridge (A2P) | | |
| | | L1R | Reactor | V2R | IGBT Power Module (A2P, A3P) | | |
| C1, 4 | Capacitor (A2P) | M1C, 2C | Motor (Compressor) | X1M | Terminal Strip (Power Supply) | | |
| DS1, 2 | Dip Switch (A1P) | M1F | Motor (FAN) | X1M | Terminal Strip (Control) (A1P) | | |
| E1HC,2HC | Crankcase Heater | PS | Switching Power Supply (A2P) | Y1E, 2E | Electronic Expansion Valve | | |
| F1U | Fuse (500V, 6A) (A4P) | Q1RP | Phase Reversal Detect Circuit (A1P) | Y1S | Solenoid Valve (Hot Gas) | | |
| F1U, 2U | Fuse (250V, 10A, B) (A1P) | R1 | Resistor (Current Limiting) (A2P) | Y2S | Solenoid Valve (Out-Multi-Oil) | | |
| H1P ~ 8P | Pilotlamp (Service monitor-orange) (A1P) [H2P] Prepare, Test --- Flickering Malfunction Detection light up | R10 | Resistor (Current Sensor) (A3P) | Y3S | Solenoid Valve (Receiver Gas Intake) | | |
| | | R133 | Resistor (Current Sensor) (A2P) | Y4S | Solenoid Valve (Receiver Gas Purge) | | |
| | | R3, 4 | Resistor (A2P) | Y5S | Solenoid Valve (Gas Purge) | | |
| HAP | Pilotlamp (Service monitor-green) (A1P~3P) | R1T | Thermistor (Fin) (A2P | Y6S | Solenoid Valve (Liquid Pipe) | | |
| K1M, 2M | Magnetic Contactor (M1C, 2C) | R1T | Thermistor (Air) (A1P) | Y7S | Solenoid Valve (4 Way Valve) | | |
| K1R | Magnetic Relay (A2P) | R2T | Thermistor (Suction) | Z1C~4C | Noise Filter (Ferrite Core) | | |
| K1R | Magnetic Relay (K2M) (A1P) | R31T, 32T | Thermistor (M1C, 2C Discharge) | Z1F | Noise Filter (With Surge Absorber) | | |
| K2R | Magnetic Relay (K1M) (A2P) | R4T | Thermistor (Heat exc. Deicer) | | | | |
| K3R | Magnetic Relay (Y2S) (A1P) | R5T | Thermistor (Heat exc. Outlet) | | | | |
| K4R | Magnetic Relay (Y3S) (A1P) | R6T | Thermistor (Liq. Pipe Receiver) | Cool/Heat Selector (KRC19-26A) | | | |
| K5R | Magnetic Relay (Y3S) (A1P) | R7T | Thermistor (Oil Pipe) | S1S | Selector Switch (Fan/Cool • Heat) | | |
| K6R | Magnetic Relay (Y4S) (A1P) | S1NPH | Pressure Sensor (High) | S2S | Selector Switch (Cool/Heat) | | |

Notes:
1. This wiring diagram is applied only to the outdoor unit.
2. – – – – – :Field wiring.
3. □□□□ : Terminal Strip ⊙⊙ Connector -o- Terminal ⏚ : Protective Earth (Screw)
4. When using the option adaptor, refer to the installation manual.
5. Refer to the installation manual, for connection wiring to indoor outdoor Transmission F1 • F2 Outdoor-Outdoor Transmission F1 • F2, Outdoor-Multi Transmission Q1 • Q2.w
6. Refer to "Operation Caution Label" (On Switch box Cover), How to use BS1 ~ BS5 and DS1 • 2 Switch.
7. When operating, don't short circuit for protection device. (S1PH)
8. Colors BLK:Black RED:Red BLU:Blue WHT:White PNK:Pink YLW:Yellow BRN:Brown GRY:Gray GRN:Green ORG:Orange

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## RXYQ14MY1B
## RXYQ16MY1B



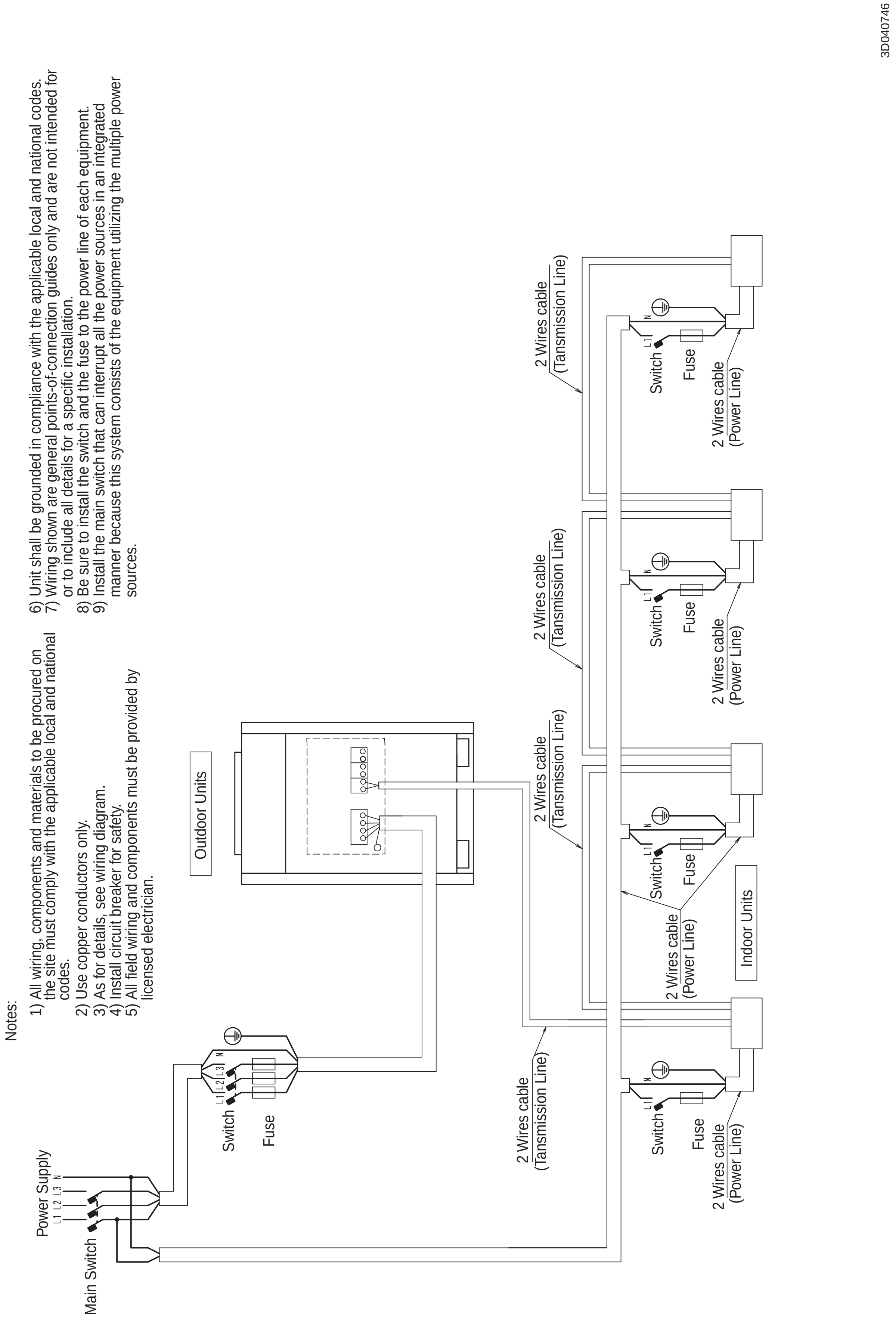

| L1-RED | L2-WHT | L3-BLU | N-BLK | | |
|---|---|---|---|---|---|
| A1P | Printed Circuit Board (Main) | K7R | Magnetic Relay (Y5S) (A1P) | S1NPL | Pressure Sensor (Low) |
| A2P | Printed Circuit Board (Inv) | K8R | Magnetic Relay (Y6S) (A1P) | S1PH~3PH | Pressure Switch (High) |
| A3P | Printed Circuit Board (Fan) | K11R | Magnetic Relay (Y7S) (A1P) | T1A | Current Sensor (A5P, A6P) |
| A4P | Printed Circuit Board (Noise filter) | K13R | Magnetic Relay (E1HC) (A1P) | T1R | Transformer (220-240V/20V) |
| A5P, 6P | Printed Circuit Board (Current Sensor) | K14R | Magnetic Relay (E2HC) (A1P) | V1CP | Safety Devices Input (A1P) |
| BS1 ~ 5 | Push Button Switch (A1P) (Mode, Set, Return, Test, Reset) | K15R | Magnetic Relay (E3HC) (A1P) | V1R | Diode Bridge (A2P) |
| | | K16R | Magnetic Relay (Option Adaptor) | V2R | IGBT Power Module (A2P, A3P) |
| C1, 4 | Capacitor (A2P) | L1R | Reactor | X1M | Terminal Strip (Power Supply) |
| DS1, 2 | Dip Switch (A1P) | M1C~3C | Motor (Compressor) | X1M | Terminal Strip (Control) (A1P) |
| E1HC-3HC | Crankcase Heater | M1F | Motor (FAN) | Y1E, 2E | Electronic Expansion Valve |
| F1U | Fuse (500V, 6A) (A4P) | PS | Switching Power Supply (A2P) | Y1S | Solenoid Valve (Hot Gas) |
| F1U, 2U | Fuse (250V, 10A, B) (A1P) | Q1RP | Phase Reversal Detect Circuit (A1P) | Y2S | Solenoid Valve (Out-Multi-Oil) |
| H1P ~ 8P | Pilotlamp (Service monitor-orange) (A1P) [H2P] Prepare, Test --- Flickering Malfunction Detection --- light up | R1 | Resistor (Current Limiting) (A2P) | Y3S | Solenoid Valve (Receiver Gas Intake) |
| | | R10 | Resistor (Current Sensor) (A3P) | Y4S | Solenoid Valve (Receiver Gas Purge) |
| | | R133 | Resistor (Current Sensor) (A2P) | Y5S | Solenoid Valve (Gas Purge) |
| HAP | Pilotlamp (Service monitor-green) (A1P~3P) | R3, 4 | Resistor (A2P) | Y6S | Solenoid Valve (Liquid Pipe) |
| K1M~3M | Magnetic Contactor (M1C, 3C) | R1T | Thermistor (Fin) (A2P | Y7S | Solenoid Valve (4 Way Valve) |
| K1R | Magnetic Relay (A2P) | R1T | Thermistor (Air) (A1P) | Z1C~5C | Noise Filter (Ferrite Core) |
| K2R | Magnetic Relay (K1M) (A1P) | R2T | Thermistor (Suction) | Z1F | Noise Filter (With Surge Absorber) |
| K2R | Magnetic Relay (K1M) (A2P) | R31~33T | Thermistor (M1C~2C Discharge) | | |
| K2R | Magnetic Relay (K3M) (A1P) | R4T | Thermistor (Heat exc. Deicer) | | |
| K3R | Magnetic Relay (Y1S) (A1P) | R5T | Thermistor (Heat exc. Outlet) | | |
| K4R | Magnetic Relay (Y2S) (A1P) | R6T | Thermistor (Liq. Pipe Receiver) | Cool/Heat Selector (KRC19-26A) | |
| K5R | Magnetic Relay (Y3S) (A1P) | R7T | Thermistor (Oil Pipe) | S1S | Selector Switch (Fan/Cool • Heat) |
| K6R | Magnetic Relay (Y4S) (A1P) | S1NPH | Pressure Sensor (High) | S2S | Selector Switch (Cool/Heat) |

Notes:
1. This wiring diagram is applied only to the outdoor unit.
2. - - - - - :Field wiring.
3. ▯▯▯▯ : Terminal Strip ▯▯ Connector -o- Terminal ⏚ : Protective Earth (Screw)
4. When using the option adaptor, refer to the installation manual.
5. Refer to the installation manual, for connection wiring to indoor outdoor Transmission F1 • F2 Outdoor-Outdoor Transmission F1 • F2, Outdoor-Multi Transmission Q1 • Q2
6. Refer to "Operation Caution Label" (On Switch box Cover), How to use BS1 ~ BS5 and DS1 • 2 Switch.
7. When operating, don't short circuit for protection device. (S1PH, S2PH, S3PH)
8. Colors BLK:Black RED:Red BLU:Blue WHT:White PNK:Pink YLW:Yellow BRN:Brown GRY:Gray GRN:Green ORG:Orange

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# 2.2 Field Wiring

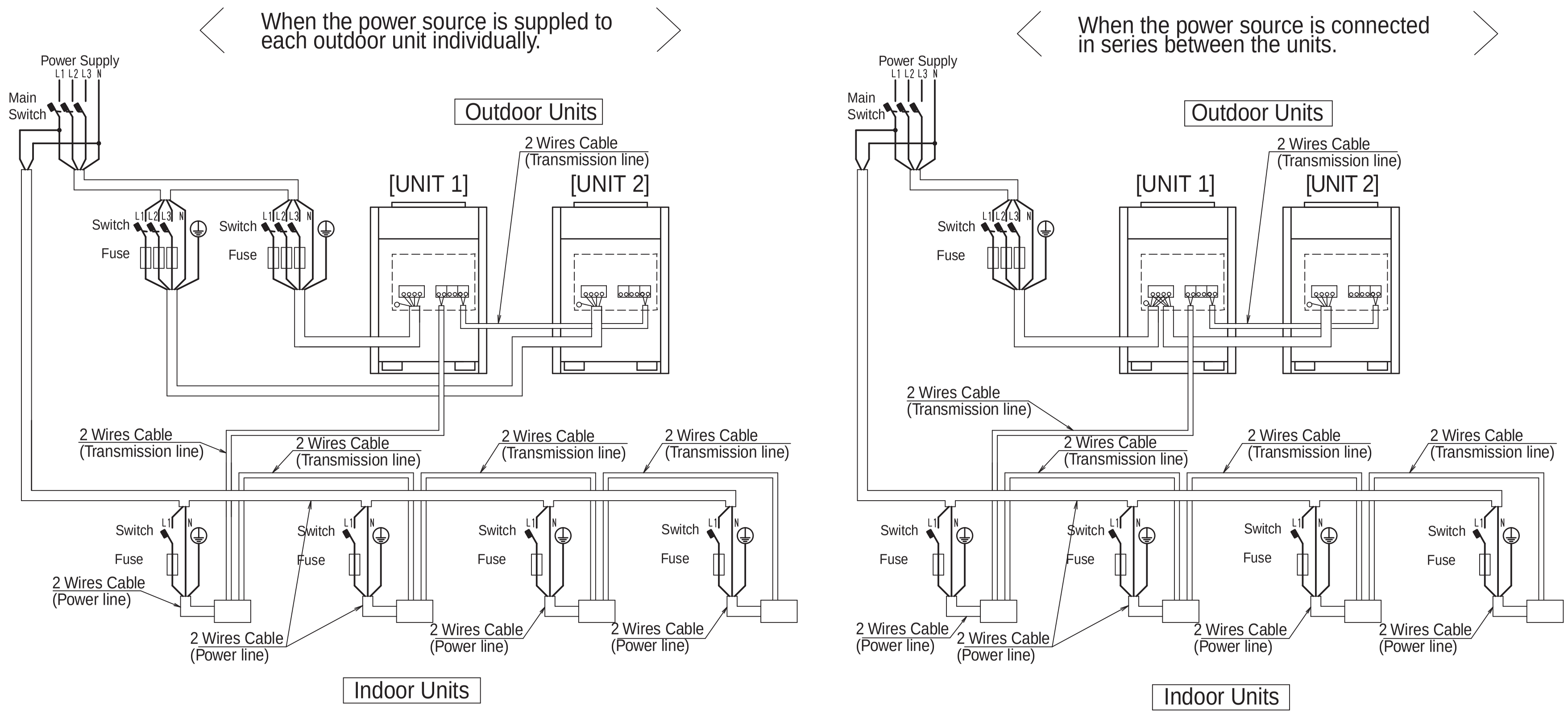
### RXYQ5~16MY1B



## RXYQ18~32MY1B

Notes:

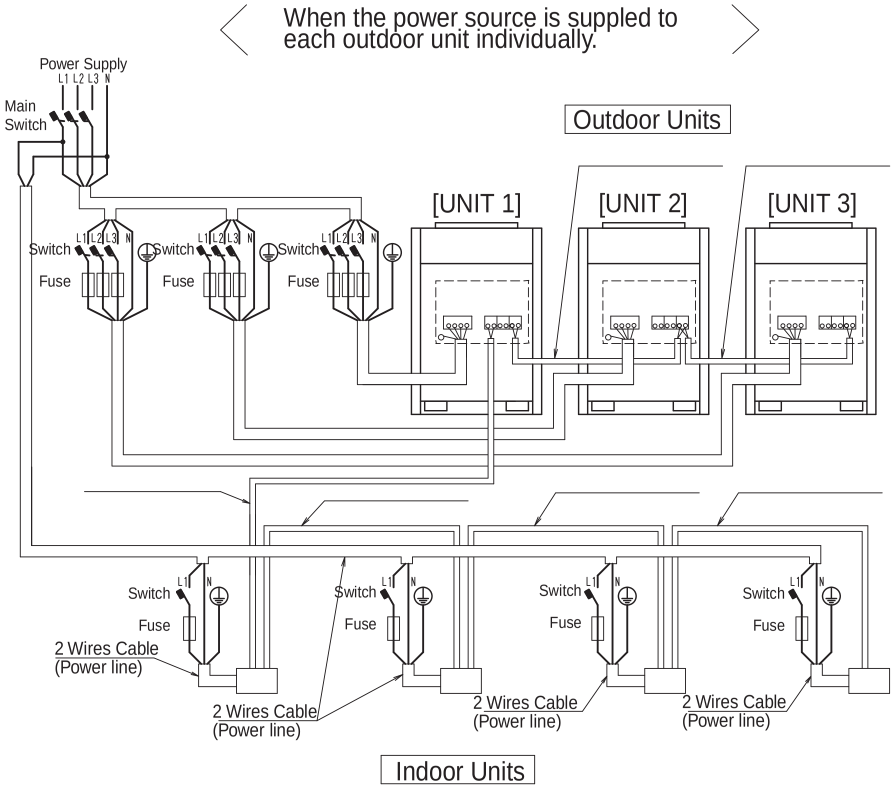
1) All wiring, components and materials to be procured on the site must comply with the applicable local and national codes.
2) Use copper conductors only.
3) As for details, see wiring diagram.
4) Install circuit breaker for safety.
5) All field wiring and components must be provided by licensed electrician.
6) Unit shall be grounded in compliance with the applicable local and national codes.
7) Wiring shown are general points-of-connection guides only and are not intended for or to include all details for a specific installation.
8) Be sure to install the switch and the fuse to the power line of each equipment.
9) Install the main switch that can interrupt all the power sources in an integrated manner because this system consists of the equipment utilizing the multiple power sources.
10) The capacity of UNIT1 must be larger than UNIT 2 when the power source is connected in series between the units.

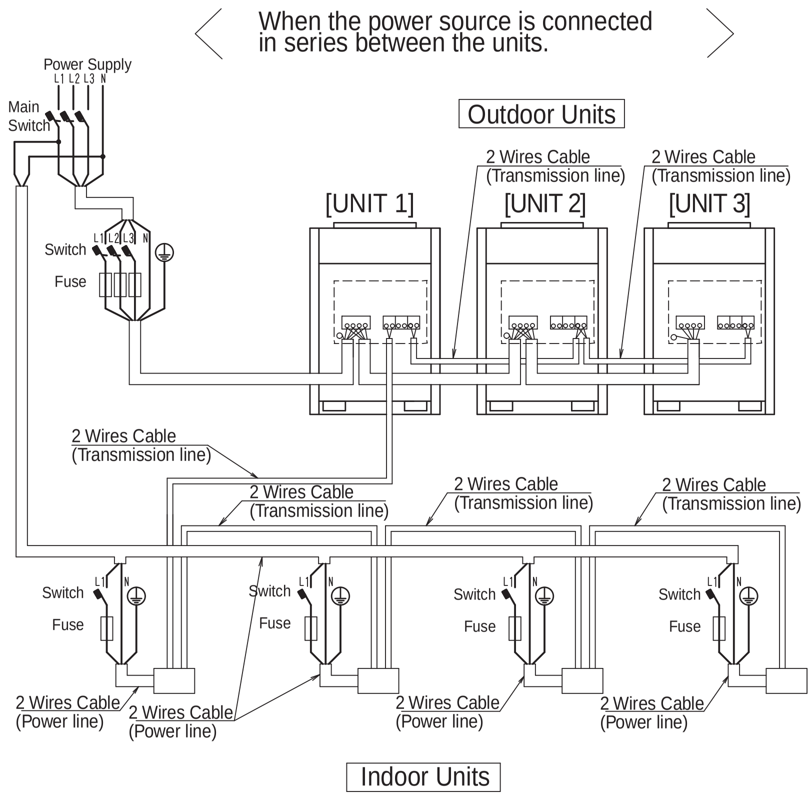



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## RXYQ34~48MY1B

Notes:
1) All wiring, components and materials to be procured on the site must comply with the applicable local and national codes.
2) Use copper conductors only.
3) As for details, see wiring diagram.
4) Install circuit breaker for safety.
5) All field wiring and components must be provided by licensed electrician.
6) Unit shall be grounded in compliance with the applicable local and national codes.
7) Wiring shown are general points-of-connection guides only and are not intended for or to include all details for a specific installation.
8) Be sure to install the switch and the fuse to the power line of each equipment.
9) Install the main switch that can interrupt all the power sources in an integrated manner because this system consists of the equipment utilizing the multiple power sources.
10) UNIT 1 must be RXYQ16MY1B when the power source is connected in series between the units. (In case of RXYQ34MY1B, RXYQ14MY1B.)

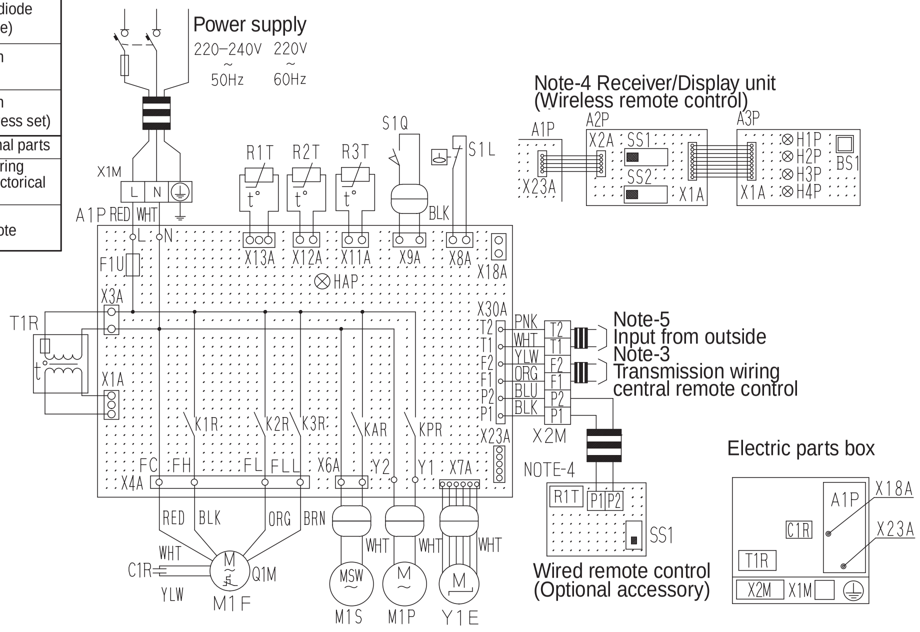



3D040748

## 2.3 Indoor Unit

### FXCQ20M / 25M / 32M / 63MVE




3D039556

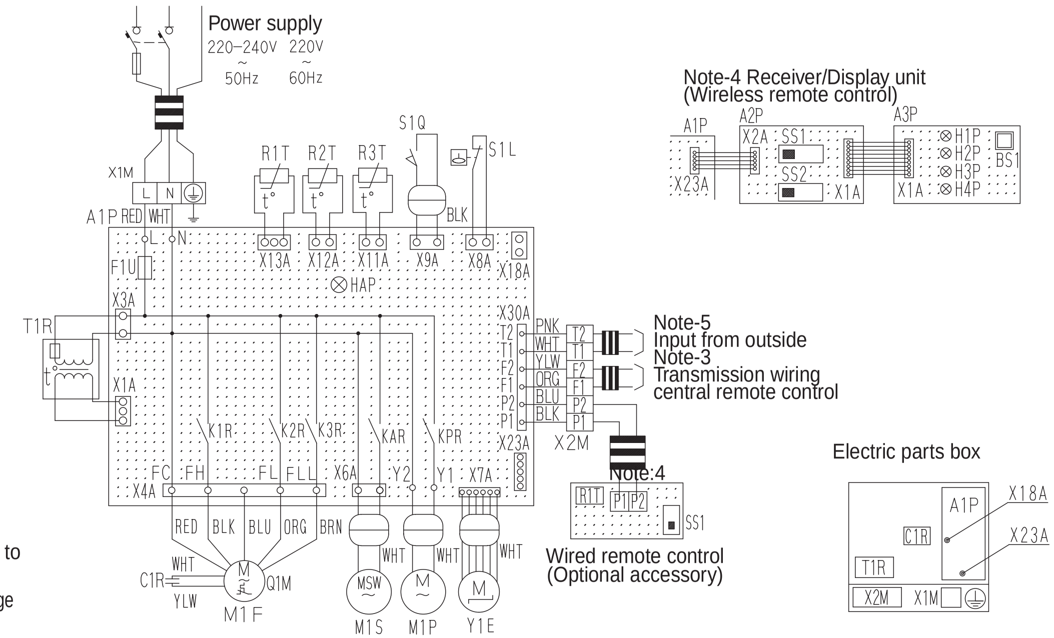
| Indoor Unit | | | | Wired remote control | | | |
|---|---|---|---|---|---|---|---|
| A1P | Printed circuit board | Q1M | Thermo switch (135C) or (145C notes 8) (M1F embedded) | R1T | Thermistor (Air) | H3P | Light emitting diode (Filter sign-red) |
| C1C | Capacitor (M1F) | | | SS1 | Selector switch (Main/Sub) | H4P | Light emitting diode (Defrost-orange) |
| F1U | Fuse ( B, 5A, 250V) | R1T | Thermistor (Air) | Receiver/Display unit (attached to wireless remote control) | | SS1 | Selector switch (Main/Sub) |
| HAP | Light emttting diode (Service monitor-green) | K1R-K3R | Thermistor (Coil) | A2P | Printed circuit board | SS2 | Selector switch (Wireless address set) |
| | | S1L | Float switch | A3P | Printed circuit board | Connector for optional parts | |
| K1R-K3R | Magnetic relay (M1F) | S1Q | Limit switch (Swing Flap) | BS1 | Push button (On/Off) | X18A | Connector (Wiring adaptor for electorical appendices) |
| KAR | Magnetic relay (M1S) | T1R | Transformer (220-240V/22V) | H1P | Light emitting diode (On-red) | X23A | Connector (Wireless remote control) |
| KPR | Magnetic relay (M1P) | X1M | Terminal strip (Power) | H2P | Light emitting diode (Timer-green) | | |
| M1F | Motor (Indoor fan) | X2M | Terminal strip (Control) | | | | |
| M1P | Motor (Drain pump) | Y1E | Electronic expansion valve | | | | |
| M1S | Motor (Swing flap) | | | | | | |

Notes
1. ▭▭▭ : Terminal block, ⊙⊙ , ▷— :Connector
2. —▮▮▮— : Field wiring
3. In case using central remote control, connect it to the unit in accordance with the attached instruction manual.
4. X23A is connected when the infrared remote control kit is being used.
5. When connecting the input wires from outside, forced off or on/off control operation can be selected by remote controller. In details, refer to the installation manual attached the unit.
6. Symbols shows as follows. PNK:PINK WHT:White YLW:Yellow ORG:Orange BLU:Blue BLK:Black RED:Red BRN:Brown: Connector
7. Use copper conductors only.
8. Only FXCQ63MVE.

## FXCQ40M / 50M / 80M/ 125MVE

| Indoor Unit | | | | | |
|---|---|---|---|---|---|
| A1P | Printed circuit board | S1L | Float switch | H1P | Light emitting diode (On-red) |
| C1C | Capacitor (M1F) | S1Q | Limit switch (Swing Flap) | H2P | Light emitting diode (Timer-green) |
| F1U | Fuse ( B, 5A, 250V) | T1R | Transformer (220-240V/22V) | | |
| HAP | Light emtting diode (Service monitor-green) | X1M | Terminal strip (Power) | H3P | Light emitting diode (Filter sign-red) |
| | | X2M | Terminal strip (Control) | | |
| K1R-K3R | Magnetic relay (M1F) | Y1E | Electronic expansion valve | H4P | Light emitting diode (Defrost-orange) |
| KAR | Magnetic relay (M1S) | | | | |
| KPR | Magnetic relay (M1P) | **Wired remote control** | | SS1 | Selector switch (Main/Sub) |
| M1F | Motor (Indoor fan) | R1T | Thermistor (Air) | | |
| M1P | Motor (Drain pump) | SS1 | Selector switch (Main/Sub) | SS2 | Selector switch (Wireless address set) |
| M1S | Motor (Swing flap) | | | | |
| Q1M | Thermo switch (135C) or (145C notes 8) (M1F embedded) | **Receiver/Display unit (attached to wireless remote control)** | | **Connector for optional parts** | |
| | | A2P | Printed circuit board | X18A | Connector (Wiring adaptor for electorical appendices) |
| R1T | Thermistor (Air) | A3P | Printed circuit board | X23A | Connector (Infrared remote control) |
| R2T-R3T | Thermistor (Coil) | BS1 | Push button (On/Off) | | |

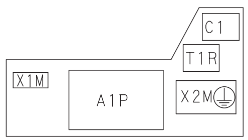
Notes:
1. ▭▭▭ : Terminal block, ○○ , ▷— : Connector
2. —▮▮▮— : Field wiring
3. In case using central remote controller, connect it to the unit in accordance with the attached instruction manual.
4. X23A is connected when the wireless remote controller kit is being used.
5. When connecting the input wires from outside, forced off or on/off control operation can be selected by remote control. In details, refer to the installation manual attached the unit.
6. Symbols shows as follows. PNK:PINK WHT:White YLW:Yellow ORG:Orange BLU:Blue BLK:Black RED:Red BRN:Brown
7. Use copper conductors only.
8. Only FXCQ80, 125MVE.



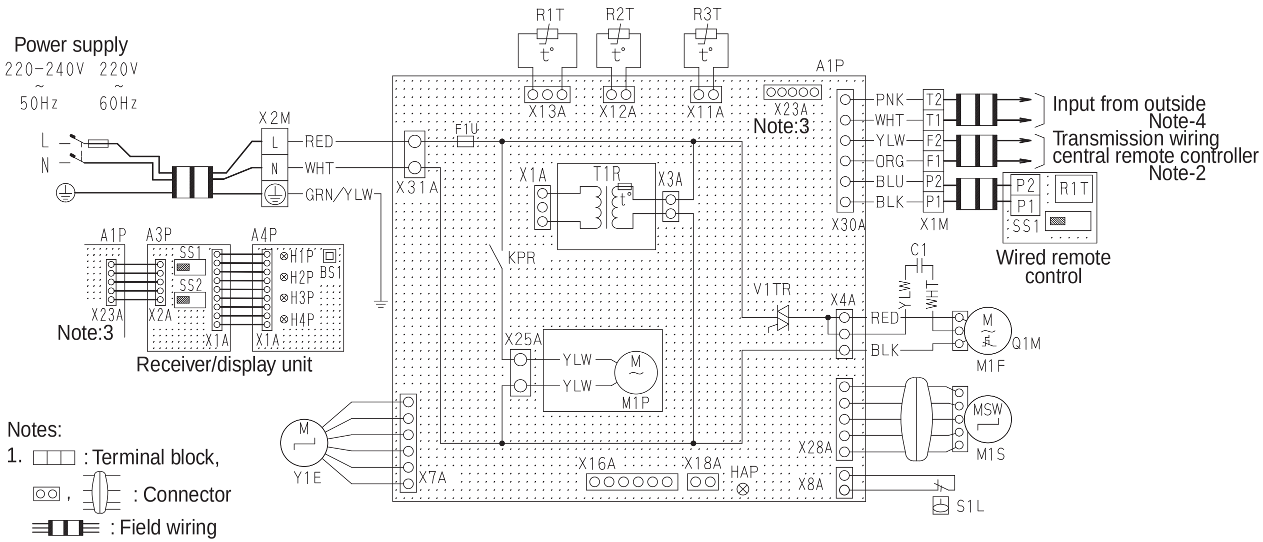

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## FXZQ20M / 25M / 32M / 40M / 50MVE

| | | | |
|---|---|---|---|
| A1P | Printed circuit board | BS1 | Push button (On/Off) |
| C1C | Capacitor (M1F) | H1P | Light emitting diode (On-red) |
| F1U | Fuse ( B, 5A, 250V) | | |
| HAP | Light emitting diode (Service monitor-green) | H2P | Light emitting diode (Timer-green) |
| KPR | Magnetic relay (M1P) | H3P | Light emitting diode (Filter sign-red) |
| M1F | Motor (Indoor fan) | | |
| M1P | Motor (Drain pump) | H4P | Light emitting diode (Defrost-orange) |
| M1S | Motor (Swing flap) | | |
| Q1M | Thermo protector (M1F embedded) | SS1 | Selector switch (Main/Sub) |
| R1T | Thermistor (Air) | | |
| R2T | Thermistor (Coil-liquid) | SS2 | Selector switch (Wireless address set) |
| R3T | Thermistor (Coil-gas) | | |
| S1L | Float switch | **Connector for optional parts** | |
| T1R | Transformer (220-240V/22V) | X16A | Connector (Adapter for wiring) |
| V1TR | Triac | | |
| X1M | Terminal block | X18A | Connector (Wiring adapter for electorical appendices) |
| X2M | Terminal block | | |
| Y1E | Electronic expansion valve | | |
| **Wired remote control** | | | |
| R1T | Thermistor (Air) | | |
| SS1 | Selector switch (Main/Sub) | | |
| **Infrared remote control Receiver/Display unit** | | | |
| A3P | Printed circuit board | | |
| A4P | Printed circuit board | | |



Control Box



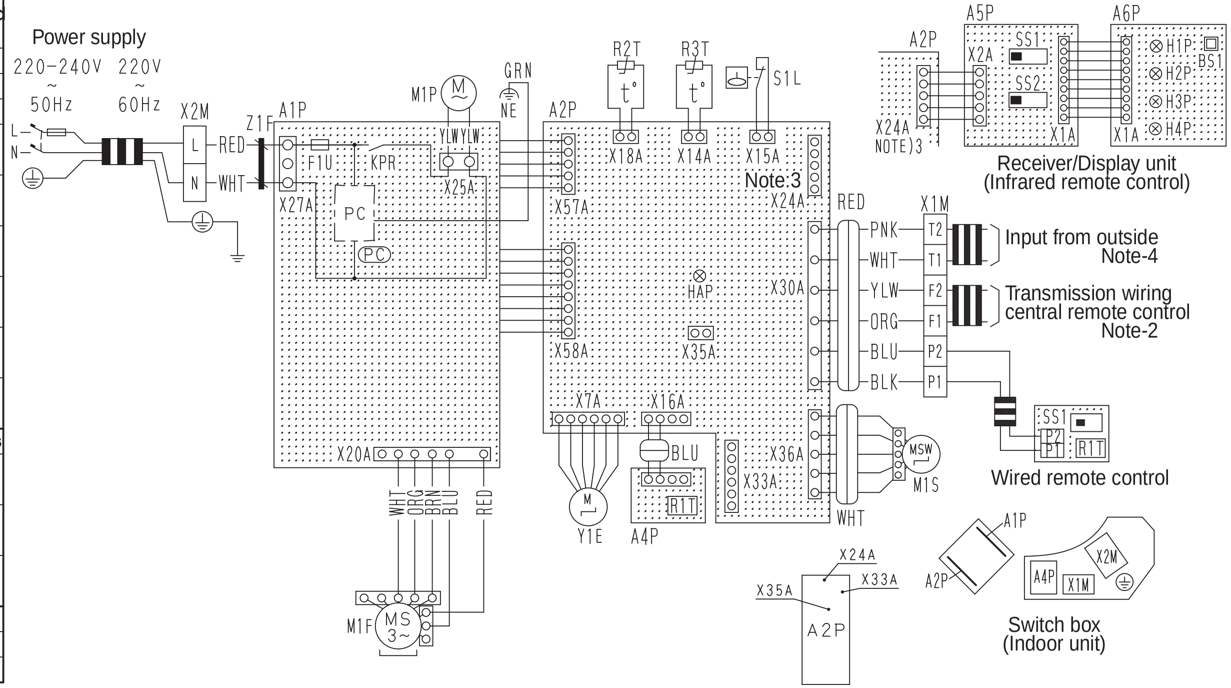

Notes:
1. ▭▭▭ : Terminal block, ◎◎ , ⫴ : Connector
≡▮▮≡ : Field wiring
2. In case using central remote controller, connect it to the unit in accordance with the attached installation manual.
3. X23A is connected when the wireless remote controller kit is being used.
4. When connecting the input wires from outside, forced off or on/off control operation can be selected by remote control. In details, refer to the installation manual attached the unit.
6. Symbols shows as follows: PNK:PINK WHT:White YLW:Yellow ORG:Orange BLU:Blue BLK:Black RED:Red BRN:Brown5. Remote control model varies according to the combination system, confirm engeneering materials and catalogs, etc. before connecting.

3D038359

## FXFQ25M / 32M / 40M / 50M / 63M / 80M / 100M / 125MVE

| Indoor unit | |
|---|---|
| A1P | Printed circuit board (Power supply) |
| A2P | Printed circuit board (Control) |
| A4P | Printed circuit board (Temperature sensor unit) |
| F1U | Fuse ( B, 5A, 250V) |
| HAP | Light emitting diode (Service monitor-green) |
| KPR | Magnetic relay (M1P) |
| M1F | Motor (Indoor fan) |
| M1P | Motor (Drain pump) |
| M1S | Motor (Swing flap) |
| R1T | Thermistor (Air) |
| R1T | Thermistor (Coil-liquid) |
| R1T | Thermistor (Coil-gas) |
| S1L | Float switch |
| X1M | Terminal strip |
| X2M | Terminal strip |
| Y1E | Electronic expansion valve |
| Z1F | Noise filter |
| (PC) | Power circuit |

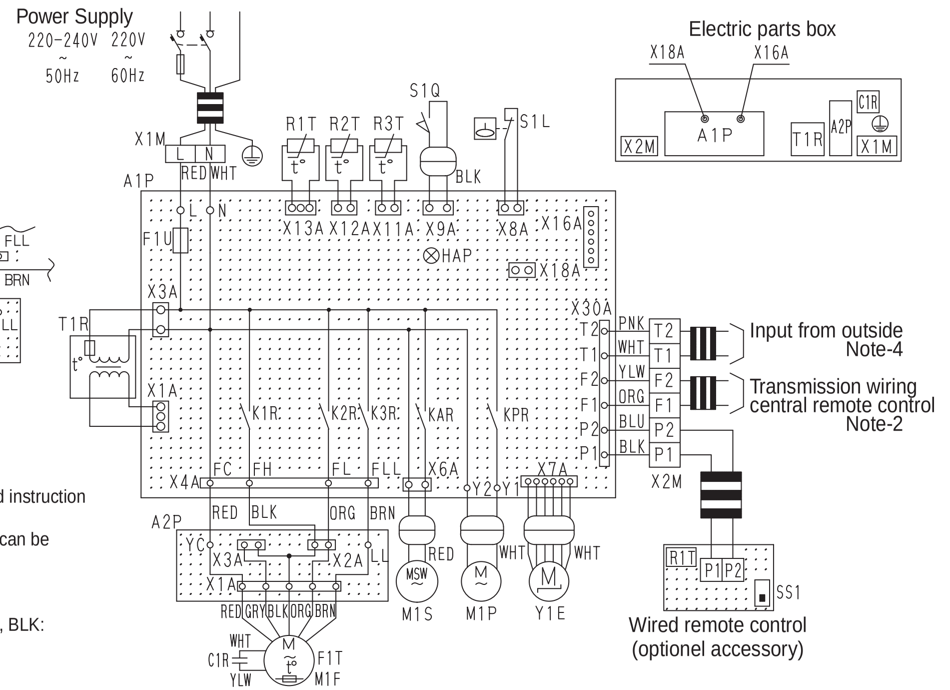
| Receiver/Display unit (attached to infrared remote control | |
|---|---|
| A5P | Printed circuit board |
| A6P | Printed circuit board |
| BS1 | Push button (On/Off) |
| H1P | Light emitting diode (On-red) |
| H2P | Light emitting diode (Timer-green) |
| H3P | Light emitting diode (Filter sign-red) |
| H4P | Light emitting diode (Defrost-orange) |
| SS1 | Selector switch (Main/Sub) |
| SS2 | Selector switch (Wireless address set) |
| **Connector for optional parts** | |
| X24A | Connector (Infrared remote control) |
| X33A | Connector (Adapter for wiring) |
| X35A | Connector (Group control adapter |
| **Wired remote control** | |
| R1T | Thermistor (Air) |
| SS1 | Selector switch (Main/Sub) |

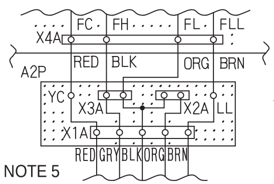



Notes)
1. ▭▭▭ : Terminal  ◯◯ , ▷ : Connector
   ═▮▮▮═ : Field wiring
2. In case using central remote control, connect it to the unit in accordance with the attached installation manual.
3. X24A is connected when the infrared remote control kit is being used.
4. When connecting the input wires from outside, forced off or on/off control operation can be selected by remote control. In details, refer to the installation manual attached the unit.
5. Remote control model varies according to the combination system, confirm engineering data and catalogs, etc. Before connecting.
6. Confirm the method of setting the selector switch (SS1, SS2) of wired remote control and wireless remote control by installation manual and engineering data, etc.
7. Symbols shows as follows. PNK:PINK WHT:White YLW:Yellow ORG:Orange GRY:Gray BLU:Blue BLK:Black RED:Red BRN:Brown GRN:Blue

3D039600

## FXKQ25M / 32M / 40M / 63MVE



NOTE 5

| Indoor unit | |
|---|---|
| A1P | Printed circuit board |
| A2P | Terminal board |
| C1R | Capacitor (M1F) |
| F1T | Thermal Fuse (105C) (M1F embedded) |
| F1U | Fuse ( B, 5A, 250V) |
| HAP | Light emitting diode (Service monitor-green) |
| K1R-K3R | Magnetic relay (M1F) |
| KAR | Magnetic relay (M1S) |
| KPR | Magnetic relay (M1P) |
| M1F | Motor (Indoor fan) |
| M1P | Motor (Drain pump) |
| M1S | Motor (Swing flap) |

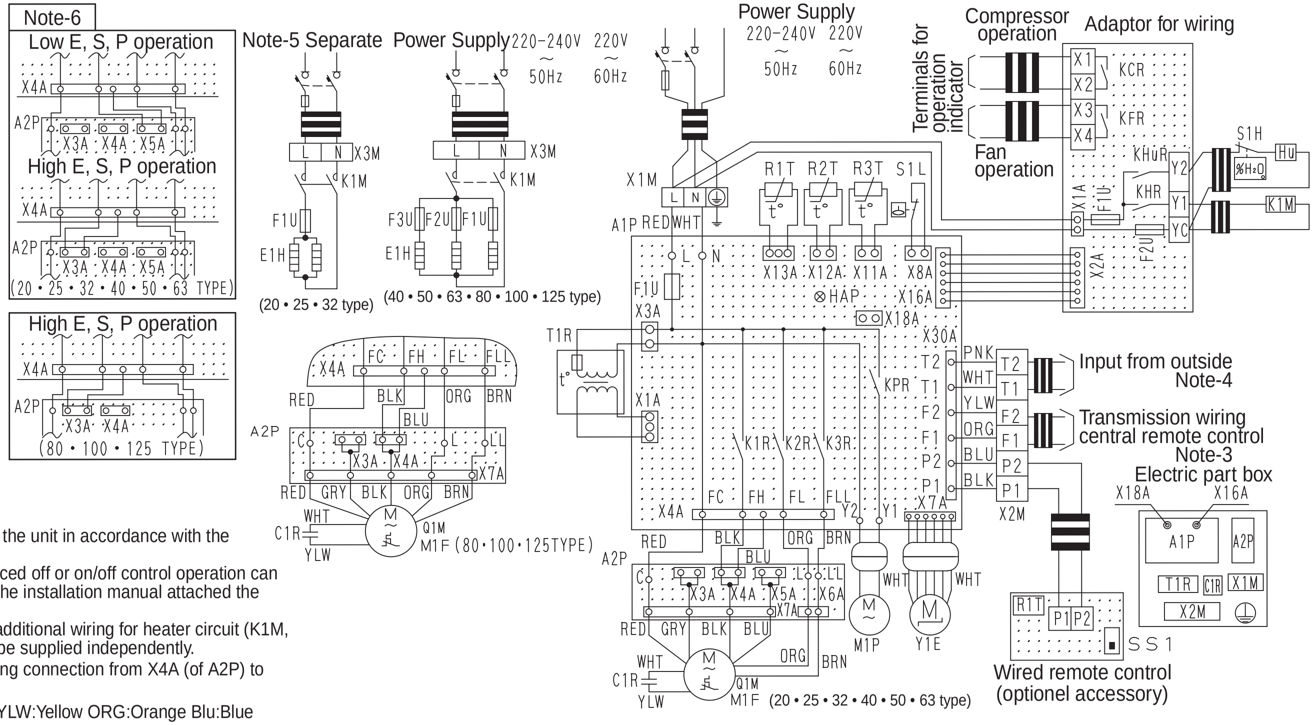
| | |
|---|---|
| R1T | Thermistor (Air) |
| K2R-K3T | Thermistor (Coil) |
| S1L | Float switch |
| S1Q | Limit switch (Swing flap) |
| T1R | Transformer (220-240V/22V) |
| X2M | Terminal strip (Power) |
| X2M | Terminal strip (Control) |
| Y1E | Electronic expansion valve |
| **Wired remote control** | |
| R1T | Thermistor (Air) |
| SS1 | Selector switch (Main/Sub) |
| **Connector for optional parts** | |
| X16A | Connector (Adapter for wiring) |
| X18A | Connector (Wiring adapter for electrorical appendices) |

Notes

1. [terminal block symbol] : Terminal block, [connector symbols] : Connector,
2. [field wiring symbol] : Field wiring.
3. In case using central remote control, connect it to the unit in accordance with the attached instruction manual.
4. When connecting the input wires from outside, forced OFF or ON/OFF, control operation can be selected by remote control.
   In details refer to the installation manual attached to the unit.
5. In case of high E.S.P. operation, change over the wiring connection from X2A to X3A.
6. Symbols show as follows: PNK: pink, WHT: white, YLW: yellow, ORG: orange, BLU: blue, BLK: Black, RED: red, BRN: brown, GRY: gray.
7. Use copper conductors only.

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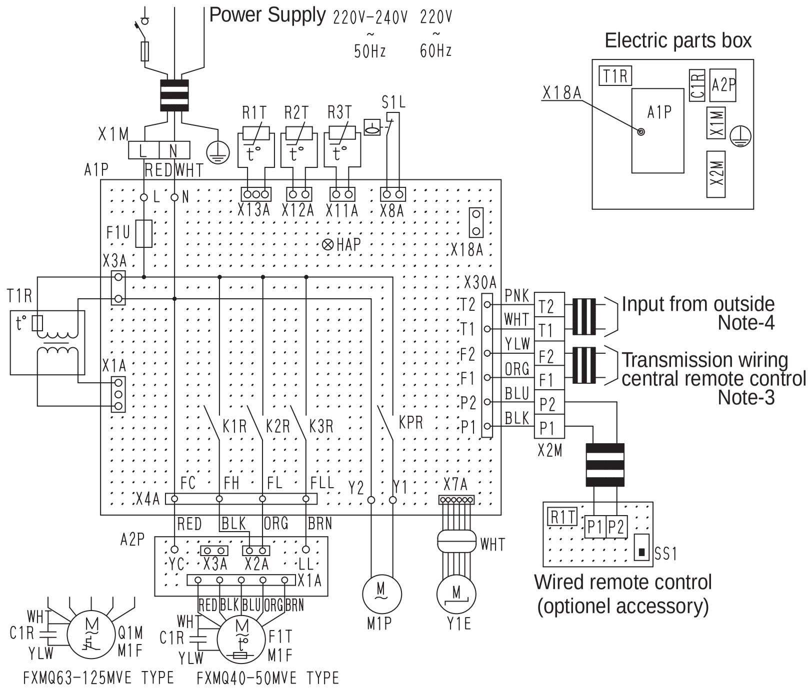
## FXSQ20M / 25M / 32M / 40M / 50M / 63M / 80M / 100M / 125MVE

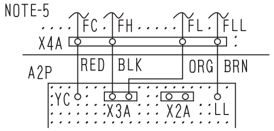



| Indoor unit | | Optional parts | |
|---|---|---|---|
| A1P | Printed circuit board | E1H | Electric heater |
| A2P | Terminal board | F1U-F3U | Fuse (B, 5A, 250V) |
| C1R | Capacitor (M1F) | Hu | Humidifier |
| F1U | Fuse ( B, 5A, 250V) | K1M | Magnetic relay (E1H) |
| HAP | Light emitting diode | S1H | Humidistat |
| | (Service monitor-green) | X3M | Terminal strip (E1H) |
| K1R-K3R | Magnetic relay (M1F) | **Wired remote control** | |
| KPR | Magnetic relay (M1P) | R1T | Thermistor (Air) |
| M1F | Motor (Indoor fan) | SS1 | Selector switch (Main/Sub) |
| M1P | Motor (Drain pump) | **Adapter for wiring** | |
| Q1M | Thermo switch (135C) | F1U-F2U | Fuse (B, 5A, 250V) |
| | or (145C notes 9) | KCR | Magnetic relay |
| | (M1F embedded) | KFR | Magnetic relay |
| R1T | Thermistor (Air) | KHR | Magnetic relay (E1H) |
| R2T-R3T | Thermistor (Coil) | KHuR | Magnetic relay (Hu) |
| S1L | Float switch | **Connector for optional parts** | |
| T1R | Transformer (220-240V/22V) | X16A | Connector (Adapter for wiring) |
| X1M | Terminal strip (Power) | X18A | Connector (Wiring adapter |
| X2M | Terminal strip (Control) | | for electrorical appendices) |
| Y1E | Electronic expansion valve | | |

Notes:
1. ▭▭▭ : Terminal block  ⊙⊙, ▷— : Connector
2. ═▮▮═ : Field wiring
3. In case using central remote control, connect it to the unit in accordance with the attached instruction manual.
4. When connecting the input wires from outside, forced off or on/off control operation can be selected by remote control. In details, refer to the installation manual attached the unit.
5. In case installing the electric heater, execute the additional wiring for heater circuit (K1M, E1H). In this case, the main power supply has to be supplied independently.
6. In case high E.S.P. operation change over the wiring connection from X4A (of A2P) to X3A or X5A.
7. Symbols show as follows. (PNK:Pink WHT:White YLW:Yellow ORG:Orange Blu:Blue BLK: Black RED:Red BRN:Brown GRY:Gray)
8. Use copper conductors only.
9. Only FX5Q80, 100, 125MVE.3.

## FXMQ40M / 50M / 63M / 80M / 100M / 125MVE



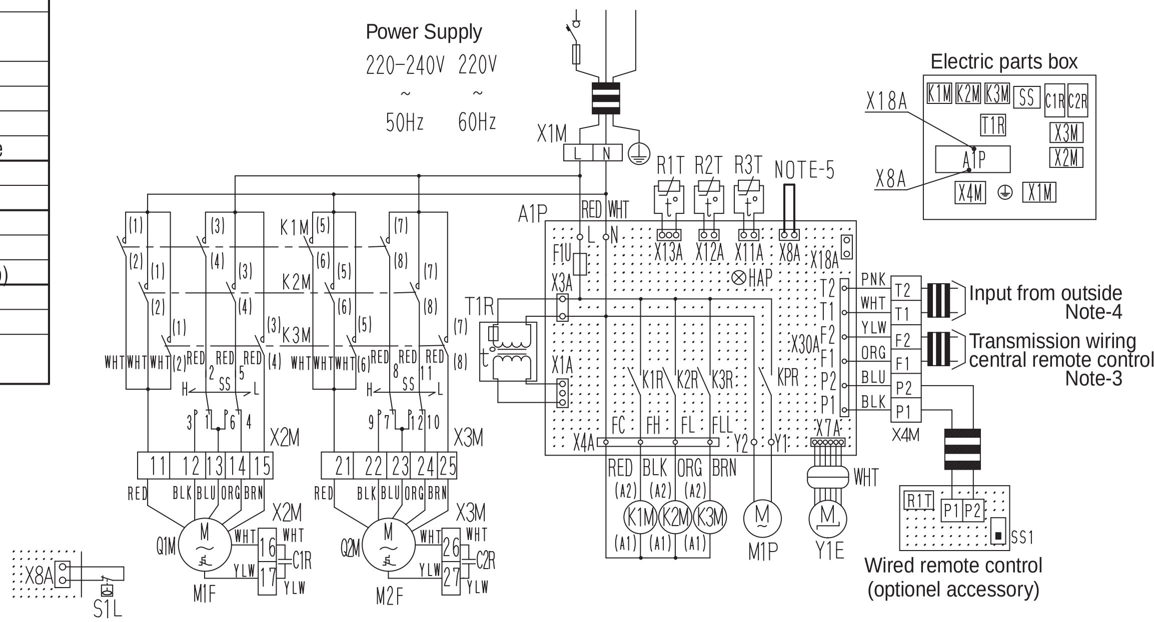

| Indoor unit | | | |
|---|---|---|---|
| A1P | Printed circuit board | R1T | Thermistor (Air) |
| A2P | Terminal board | R2R-R3T | Thermistor (Coil) |
| C1R | Capacitor (M1F) | S1L | Float switch |
| F1T | Thermal Fuse (153t) (M1F built-in only 40-50 type) | T1R | Transformer (220-240V/22V) |
| | | X1M | Terminal strip (Power) |
| | | X2M | Terminal strip (Control) |
| F1U | Fuse ( B, 5A, 250V) 40-50-63-80 type | Y1E | Electronic expansion valve |
| | | **Optional parts** | |
| F1U | Fuse ( B, 5A, 250V) 100-125type | M1P | Motor (Drain pump) |
| | | **Wired remote control** | |
| HAP | Light emitting diode (Service monitor-green) | SS1 | Selector switch (Main/Sub) |
| K1R-K3R | Magnetic relay (M1F) | R1T | Thermistor (Air) |
| KPR | Magnetic relay (M1P) | **Connector for optional parts** | |
| M1F | Motor (Indoor fan) | X18A | Connector (Wiring adapter for electrorical appendices) |
| Q1M | Thermo switch (M1F Built-in only 63-125 type) | | |

Notes)
1. ⎕⎕⎕ : Terminal, ⦾⦾ , ▷– : Connector
2. ─▮▮▮─ : Field wiring
3. In case using central remote control, connect it to the unit in accordance with the attached instruction manual.
4. When connecting the input wires from outside, forced off or on/off control operation can be selected by remote control.
   In details, refer to the installation manual attached the unit.
5. In case high E.S.P. operation change over the wiring connection from X2A as shown upper figure.
6. Symbols show as follows . (PNK:Pink WHT:White YLW:Yellow ORG:Orange BlU:Blue BLK: Black RED:Red BRN:Brown GRY:Gray)
7. Use copper conductors only.

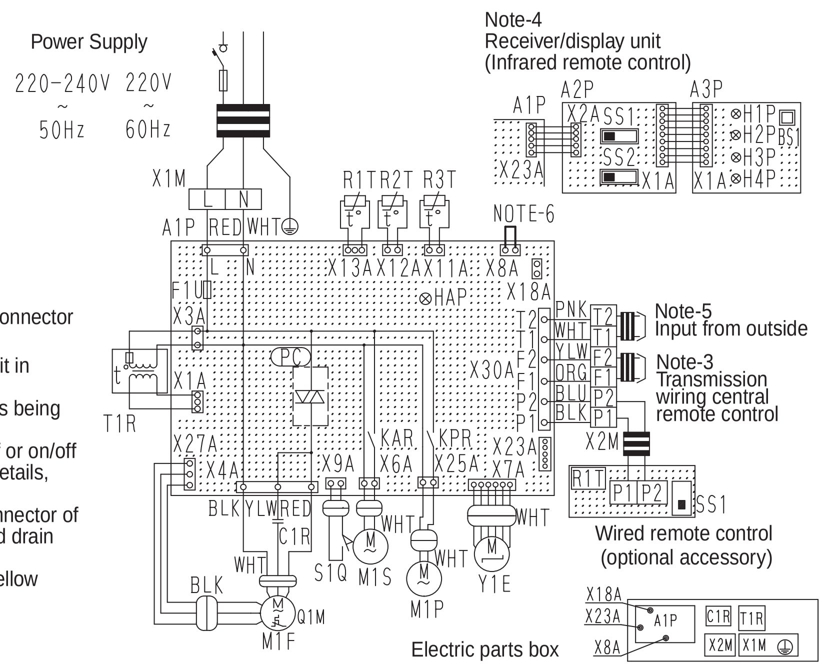
## FXMQ200M / 250MVE

| Indoor unit | | | |
|---|---|---|---|
| A1P | Printed circuit board | R1T | Thermistor (Air) |
| C1R-C2R | Capacitor (M1F-M2F) | R2R-R3T | Thermistor (Coil) |
| F1U | Fuse ( Ⓑ, 5A, 250V) | SS | Selector switch (Static pressure) |
| HAP | Light emitting diode (Service monitor-green) | T1R | Transformer (220-240V/22V) |
| K1M | Magnetic contactor (M1F-2F) | X2M | Terminal strip (Power) |
| K2M | Magnetic contactor (M1F-2F) | X2M-X4M | Terminal strip (Control) |
| K3M | Magnetic contactor (M1F-2F) | Y1E | Electronic expansion valve |
| K1R-K3R | Magnetic relay (M1F-2F) | **Optional parts** | |
| KPR | Magnetic relay (M1P) | M1P | Motor (Drain pump) |
| M1F-M2F | Motor (Indoor fan) | **Wired remote control** | |
| Q1M-Q2M | Thermo switch (M1F-2F embedded) | R1T | Thermistor (Air) |
| | | SS1 | Selector switch (Main/Sub) |
| | | **Connector for optional parts** | |
| | | X8A | Connector (Float switch) |
| | | X18A | Connector (Wiring adapter for electrorical appendices) |

Notes)
1. ⊏⊐⊐ : Terminal ⊙⊙ , ▷– : Connector ⊡ : Jumper connector
2. ═▮▮▮═ : Field wiring
3. In case using central remote control, connect it to the unit in accordance with the attached instruction manual.
4. When connecting the input wires from outside, forced off or on/off control operation can be selected by remote control. In details, refer to the installation manual attached the unit.
5. In case installing the drain pump, remove the jumper and execute the additional wiring for float switch (S1L).
6. Symbols show as follows. (PNK:Pink WHT:White YLW:Yellow ORG:Orange BLU: Blue BLK: Black RED:Red BRN:Brown GRY:Gray)
7. Use copper conductors only.
8. In case high E.S.P. operation, change the switch (SS) for "H".



## FXHQ32M / 63M / 100MVE



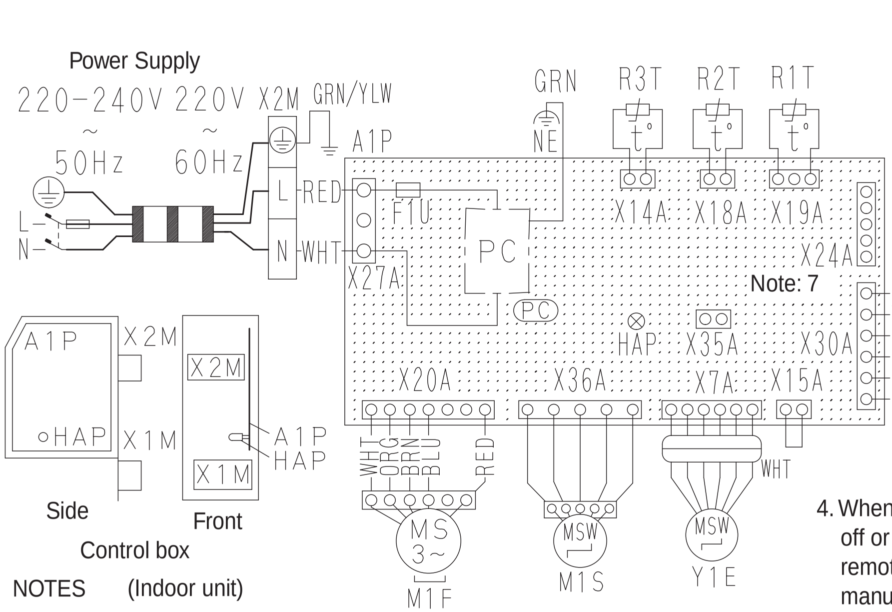

| Indoor unit | |
|---|---|
| A1P | Printed circuit board |
| C1R | Capacitor (M1F) |
| F1U | Fuse ( B, 5A, 250V) |
| HAP | Light emitting diode (Service monitor-green) |
| KAR | Magnetic relay (M1S) |
| KPR | Magnetic relay (M1P) |
| M1F | Motor (Indoor fan) |
| M1S | Motor (Swing flap) |
| Q1M | Thermo switch (M1F embedded) |
| R1T | Thermistor (Air) |
| R2T | Thermistor (Coil-liquid) |
| R3T | Thermistor (Coil-gas) |
| S1Q | Limit switch (Swing flap) |
| T1R | Transformer (220-240V/22V) |
| X1M | Terminal strip (Power) |
| X2M | Terminal strip (Control) |
| Y1E | Electronic expansion valve |
| (PC) | Phase control circuit |
| **Optional parts** | |
| M1P | Motor (Drain pump) |
| **Wired remote control** | |
| R1T | Thermistor (Air) |
| SS1 | Selector switch (Main/Sub) |
| **Receiver/Display unit (attached to infrared remote control** | |
| A2P | Printed circuit board |
| A3P | Printed circuit board |
| BS1 | Push button (On/Off) |
| H1P | Light emitting diode (On-red) |
| H2P | Light emitting diode (Timer-green) |
| H3P | Light emitting diode (Filter sign-red) |
| H3P | Light emitting diode (Defrost-orange) |
| SS1 | Selector switch (Main/Sub) |
| SS2 | Selector switch (Wireless address set) |
| **Connector for optional parts** | |
| X8A | Connector (Float switch) |
| X18A | Connector (Wiring adaptor for electrical appendices) |
| X23A | Connector (Infrared remote control) |

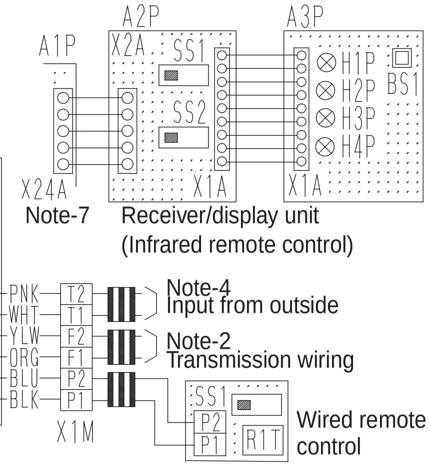
NOTES

1. ▭▭▭ : Terminal   ⚬⚬ , ▷ : Connector   ⊐ : Connector
2. ═▮▮▮═ : Field wiring
3. In case using central remote control, connect it to the unit in accordance with the attached instruction manual.
4. X23A is connected when the infrared remote control kit is being used.
5. When connecting the input wires from outside, forced off or on/off control operation can be selected by remote control. In details, refer to the installation manual attached the unit.
6. In case installing the drain pump, remove the jumper connector of X8A and execute the additional wiring for float switch and drain pump.
7. Symbols show as follows. (PNK:Pink WHT:White YLW:Yellow ORG:Orange BLU:Blue BLK: Black RED:Red
8. Use copper conductors only.

## FXAQ20M / 25M / 32MVE / 40M / 50M / 63MVE

| | Indoor unit |
|---|---|
| A1P | Printed circuit board |
| F1U | Fuse ( B, 5A, 250V) |
| HAP | Light emitting diode (Service monitor-green) |
| M1S | Motor (Swing flap) |
| M1F | Motor (Indoor fan) |
| R1T | Thermistor (Air) |
| R2T | Thermistor (Coil-liquid pipe) |
| R3T | Thermistor (Coil-gas pipe) |
| X1M | Terminal block (Control) |
| X2M | Terminal block (Power) |
| Y1E | Electronic expansion valve |
| PC | Power circuit |
| | **Receiver/Display unit (attached to infrared remote control** |
| A2P | Printed circuit board |
| A3P | Printed circuit board |
| BS1 | Push button (On/Off) |
| H1P | Light emitting diode (On-red) |
| H2P | Light emitting diode (Timer-green) |
| H3P | Light emitting diode (Filter sign-red) |
| H4P | Light emitting diode (Defrost-orange) |
| SS1 | Selector switch (Main/Sub) |
| SS2 | Selector switch (Wireless address set) |



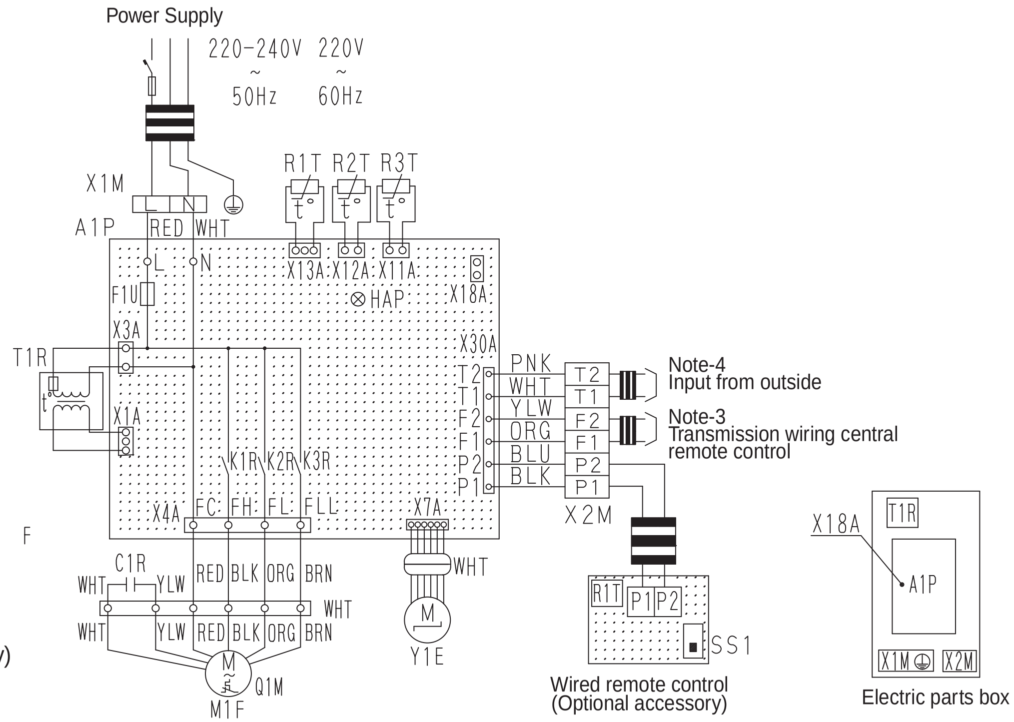

NOTES (Indoor unit)

1. ▭▭▭▭ : Terminal
   ═╫═ : Field wiring
   ○○ : Connector
   ▭ : Connector
2. In case using central remote control, connect it to to the unit in accordance with the attached installation manual.
3. Symbols show as follows.
   (PNK:Pink WHT:White YLW:Yellow ORG:Orange Blu:Blue BLK: Black
   RED:Red BRN:Brown GRY:Gray)
4. When connecting the input wires from outside, forced off or on/off control operation can be selected by remote control. In details, refer to the installation manual attached the unit.
5. Remote control model varies according to the combination system, confirm engineering data and catalogs, etc. before connecting.
6. Confirm the method of setting the selector switch (SS1, SS2) of wired remote control and infrared remote control by installation manual and engineering data, etc.
7. X24A is connected when the infrared remote control kit is being used.

| Wired remote control | | Connector for optional switch | |
|---|---|---|---|
| R1T | Thermistor (Air) | X15A | Thermistor (Air) |
| SS1 | Selector switch (Main/Sub) | X35A | Connector (Group control adaptor) |

3D034206A

## FXLQ20M / 25M / 32M / 40M / 50M / 63MVE
## FXNQ20M / 25M / 32M / 40M / 50M / 63MVE




3D039826

| Indoor Unit | | | |
|---|---|---|---|
| A1P | Printed circuit board | X2M | Terminal strip (Control) |
| C1R | Capacitor (M1F) | Y1E | Electronic expansion valve |
| F1U | Fuse ( Ⓑ, 5A, 250V) | **Wired remote control** | |
| HAP | Light emitting diode (Service monitor-green) | R1T | Thermistor (Air) |
| | | SS1 | Selector switch (Main/Sub) |
| | | **Connector for optional parts** | |
| K1R-K3R | Magnetic relay (M1F) | X18A | Connector (Wiring adaptor for electorical appendices) |
| M1F | Motor (Indoor fan) | | |
| Q1M | Thermal switch (M1F embedded) | | |
| R1T | Thermistor (Air) | | |
| R2T • R3T | Thermistor (Coil) | | |
| T1R | Transformer (220-240V/22V) | | |
| X1M | Terminal strip (Power) | | |

Notes:
1. ▭▭▭ : Terminal    ⊡ , ▷— : Connector
2. ═▮▮▮═ : Field wiring
3. In case using central remote control, connect it to the unil in accordance with the attached instruction manual.
4. When connecting the input wires from outside, forced off or on/off control operation can be selected by remote control. In details, refer to the installation manual attached the unit.
5. Symbols show as follows . (PNK:Pink WHT:White YLW:Yellow ORG:Orange BLU:Blue BLK: Black RED:Red BRN:Brown GRY:Gray)
6. Use copper conductors only.

# 3. List of Electrical and Functional Parts

## 3.1 Outdoor Unit

### 3.1.1 RXYQ5~16MY1B

| Item | Name | | | Symbol | Model | | |
|---|---|---|---|---|---|---|---|
| | | | | | RXYQ5MY1B | RXYQ8MY1B | RXYQ10MY1B |
| Compressor | Inverter | | Type | M1C | JT1FCVDKYR | JT1FCVDKTYR | JT1FCVDKTYR |
| | | | Output | | 3.2kW | 1.2kW | 2.7kW |
| | STD.1 | | Type | M2C | — | JT170FCKYE | JT170FCKYE |
| | | | Output | | | 4.5kW | 4.5kW |
| | STD.2 | | Type | M3C | — | | |
| | | | Output | | | | |
| | Crankcase heater (INV) | | | E1HC | 240V 33W | | |
| | Crankcase heater (STD.1) | | | E2HC | — | 240V 33W | |
| | Crankcase heater (STD.2) | | | E3HC | — | | |
| | OC protection device for STD compressor | | | — | — | 15A | |
| Fan motor | Motor | | | M1F | 0.35kw | 0.75kw | |
| | OC protection device | | | — | 1.6A | 3.2A | |
| Functional parts | Electronic expansion valve (Main) | | Cooling | Y1E | 1400pls | 0pls | |
| | | | Heating | | PI control | | |
| | Electronic expansion valve (Subcool) | | Cooling | Y2E | — | PI control | |
| | | | Heating | | | 0pls | |
| | Solenoid valve (Hot gas) | | | Y1S | TEV1620DQ2 | | |
| | Solenoid valve (External multi oil) | | | Y2S | TEV1620DQ2 | | |
| | Solenoid valve (Receiver gas charge) | | | Y3S | — | TEV1620DQ2 | |
| | Solenoid valve (Receiver gas discharge) | | | Y4S | VPV-603D | | |
| | Solenoid valve (Non-operating unit gas discharge) | | | Y5S | — | TEV1620DQ2 | |
| | Solenoid valve (Non-operating unit liquid pipe close) | | | Y6S | — | VPV-803DQ50 | |
| | 4 way valve | | | Y7S | VT3101C | VHV0404 | |
| Pressure-related parts | Pressure switch (INV) | | | S1PH | PS80 ON : 3.8+0/-0.15MPa OFF : 2.85±0.15MPa | | |
| | Pressure switch (STD1) | | | S2PH | — | PS80<br>ON : 3.8+0/-0.15MPa<br>OFF : 2.85±0.15MPa | |
| | Pressure switch (STD2) | | | S3PH | — | | |
| | Fusible plug | | | — | FPGD-3D 70 to 75°C | | |
| | Pressure sensor (HP) | | | S1NPH | PS8051A 0 to 4.15MPa | | |
| | Pressure sensor (LP) | | | S1NPL | PS8051A -0.1 to 1.7MPa | | |
| Thermistor | INV PCB | For fin | | R1T | 3.5 to 360Ω | | |
| | Main PCB | For outdoor air | | R1T | 3.5 to 360Ω | | |
| | | For suction pipe | | R2T | 3.5 to 360Ω | | |
| | | For discharge pipe (INV) | | R31T | 3.5 to 400Ω | | |
| | | For discharge pipe (STD.1) | | R32T | 3.5 to 400Ω | | |
| | | For discharge pipe (STD.2) | | R33T | 3.5 to 400Ω | | |
| | | For heat exchanger | | R4T | 3.5 to 360Ω | | |
| | | For subcooling heat exchanger | | R5T | 3.5 to 360Ω | | |
| | | For receiver liquid pipe | | R6T | 3.5 to 360Ω | | |
| | | For equalizing pipe | | R7T | 3.5 to 360Ω | | |
| Others | Fuse (A1P) | | | F1, 2U | 250VAC 10A Class B | | |

| Item | Name | | Symbol | Model | | |
|---|---|---|---|---|---|---|
| | | | | RXYQ12MY1B | RXYQ14MY1B | RXYQ16MY1B |
| Compressor | Inverter | Type | M1C | JT1FCVDKTYR | JT1FCVDKTYR | JT1FCVDKTYR |
| | | Output | | 4.2kW | 2.0kW | 3.0kW |
| | STD.1 | Type | M2C | JT170FCKYE | JT170FCKYE | JT170FCKYE |
| | | Output | | 4.5kW | 4.5kW | 4.5kW |
| | STD.2 | Type | M3C | — | JT170FCKYE | JT170FCKYE |
| | | Output | | | 4.5kW | 4.5kW |
| | Crankcase heater (INV) | | E1HC | 240V 33W | | |
| | Crankcase heater (STD.1) | | E2HC | 240V 33W | | |
| | Crankcase heater (STD.2) | | E3HC | — | 240V 33W | |
| | OC protection device for STD compressor | | — | 15A | | |
| Fan motor | Motor | | M1F | 0.75kw | | |
| | OC protection device | | — | 3.2A | | |
| Functional parts | Electronic expansion valve (Main) | Cooling | Y1E | 0pls | | |
| | | Heating | | PI control | | |
| | Electronic expansion valve (Subcool) | Cooling | Y2E | PI control | | |
| | | Heating | | 0pls | | |
| | Solenoid valve (Hot gas) | | Y1S | TEV1620DQ2 | | |
| | Solenoid valve (External multi oil) | | Y2S | TEV1620DQ2 | | |
| | Solenoid valve (Receiver gas charge) | | Y3S | TEV1620DQ2 | | |
| | Solenoid valve (Receiver gas discharge) | | Y4S | VPV-603D | | |
| | Solenoid valve (Non-operating unit gas discharge) | | Y5S | TEV1620DQ2 | | |
| | Solenoid valve (Non-operating unit liquid pipe close) | | Y6S | VPV-803DQ50 | | |
| | 4 way valve | | Y7S | VHV0404 | VT60100 | |
| Pressure-related parts | Pressure switch (INV) | | S1PH | PS80 ON : 3.8+0/-0.15MPa OFF : 2.85±0.15MPa | | |
| | Pressure switch (STD1) | | S2PH | PS80 ON : 3.8+0/-0.15MPa OFF : 2.85±0.15MPa | | |
| | Pressure switch (STD2) | | S3PH | — | PS80<br>ON : 3.8+0/-0.15MPa<br>OFF : 2.85±0.15MPa | |
| | Fusible plug | | — | FPGD-3D 70 to 75°c | | |
| | Pressure sensor (HP) | | S1NPH | PS8051A 0 to 4.15MPa | | |
| | Pressure sensor (LP) | | S1NPL | PS8051A -0.1 to 1.7MPa | | |
| Thermistor | INV PCB | For fin | R1T | 3.5 to 360Ω | | |
| | Main PCB | For outdoor air | R1T | 3.5 to 360Ω | | |
| | | For suction pipe | R2T | 3.5 to 360Ω | | |
| | | For discharge pipe (INV) | R31T | 3.5 to 400Ω | | |
| | | For discharge pipe (STD.1) | R32T | 3.5 to 400Ω | | |
| | | For discharge pipe (STD.2) | R33T | 3.5 to 400Ω | | |
| | | For heat exchanger | R4T | 3.5 to 360Ω | | |
| | | For subcooling heat exchanger | R5T | 3.5 to 360Ω | | |
| | | For receiver liquid pipe | R6T | 3.5 to 360Ω | | |
| | | For equalizing pipe | R7T | 3.5 to 360Ω | | |
| Others | Fuse (A1P) | | F1, 2U | 250VAC 10A Class B | | |

# 3.2 Indoor Side
## 3.2.1 Indoor Unit

<table>
<tr><th colspan="2" rowspan="2">Parts Name</th><th rowspan="2">Symbol</th><th colspan="8">Model</th><th rowspan="2">Remark</th></tr>
<tr><th>FXFQ25 MVE</th><th>FXFQ32 MVE</th><th>FXFQ40 MVE</th><th>FXFQ50 MVE</th><th>FXFQ63 MVE</th><th>FXFQ80 MVE</th><th>FXFQ100 MVE</th><th>FXFQ125 MVE</th></tr>
<tr><td rowspan="2">Remote Controller</td><td>Wired Remote Control</td><td></td><td colspan="8">BRC1A61</td><td>Option</td></tr>
<tr><td>Wireless Remote Control</td><td></td><td colspan="8">BRC7E61W</td><td>Option</td></tr>
<tr><td rowspan="3">Motors</td><td>Fan Motor</td><td>M1F</td><td colspan="6">DC380V 30W 8P</td><td colspan="2">DC 380V 120W 8P</td><td></td></tr>
<tr><td>Drain Pump</td><td>M1P</td><td colspan="8">AC220-240V (50Hz) AC220V (60Hz)<br>PLD-12230DM<br>Thermal Fuse 145°C</td><td></td></tr>
<tr><td>Swing Motor</td><td>M1S</td><td colspan="8">MP35HCA[3P007482-1]<br>Stepping Motor DC16V</td><td></td></tr>
<tr><td rowspan="3">Thermistors</td><td>Thermistor (Suction Air)</td><td>R1T</td><td colspan="8">In PCB A4P or wired Remote Control</td><td></td></tr>
<tr><td>Thermistor (for Heat Exchanger High Temp.)</td><td>R3T</td><td colspan="8">ST8605-5 φ8 L1000<br>20kΩ (25°C)</td><td></td></tr>
<tr><td>Thermistor (Heat Exchanger)</td><td>R2T</td><td colspan="8">ST8602A-5 φ6 L1000<br>20kΩ (25°C)</td><td></td></tr>
<tr><td rowspan="4">Others</td><td>Float Switch</td><td>S1L</td><td colspan="8">FS-0211B</td><td></td></tr>
<tr><td>Fuse</td><td>F1U</td><td colspan="8">250V 5A φ5.2</td><td></td></tr>
<tr><td>Thermal Fuse</td><td>TFu</td><td colspan="8">—</td><td></td></tr>
<tr><td>Transformer</td><td>T1R</td><td colspan="8">—</td><td></td></tr>
</table>

<table>
<tr><th colspan="2" rowspan="2">Parts Name</th><th rowspan="2">Symbol</th><th colspan="8">Model</th><th rowspan="2">Remark</th></tr>
<tr><th>FXCQ 20MVE</th><th>FXCQ 25MVE</th><th>FXCQ 32MVE</th><th>FXCQ 40MVE</th><th>FXCQ 50MVE</th><th>FXCQ 63MVE</th><th>FXCQ 80MVE</th><th>FXCQ 125MVE</th></tr>
<tr><td rowspan="2">Remote Controller</td><td>Wired Remote Control</td><td></td><td colspan="8">BRC1A61</td><td>Option</td></tr>
<tr><td>Infrared Remote Control</td><td></td><td colspan="8">BRC7C62</td><td>Option</td></tr>
<tr><td rowspan="5">Motors</td><td rowspan="3">Fan Motor</td><td rowspan="3">M1F</td><td colspan="8">AC 220~240V 50Hz</td><td></td></tr>
<tr><td>1φ10W</td><td colspan="2">1φ15W</td><td colspan="2">1φ20W</td><td>1φ30W</td><td>1φ50W</td><td>1φ85W</td><td></td></tr>
<tr><td colspan="4">Thermal Fuse 152°C</td><td>—</td><td colspan="3">Thermal protector 135°C : OFF<br>87°C : ON</td><td></td></tr>
<tr><td>Drain Pump</td><td>M1P</td><td colspan="8">AC220-240V (50Hz) AC220V (60Hz)<br>PLD-12230DM<br>Thermal Fuse 145°C</td><td></td></tr>
<tr><td>Swing Motor</td><td>M1S</td><td colspan="8">MT8-L[3PA07509-1]<br>AC200~240V</td><td></td></tr>
<tr><td rowspan="3">Thermistors</td><td>Thermistor (Suction Air)</td><td>R1T</td><td colspan="8">ST8601-6 φ4 L1250<br>20kΩ (25°C)</td><td></td></tr>
<tr><td>Thermistor (for Heat Exchanger High Temp.)</td><td>R3T</td><td colspan="8">ST8605-6 φ8 L1250<br>20kΩ (25°C)</td><td></td></tr>
<tr><td>Thermistor (Heat Exchanger)</td><td>R2T</td><td colspan="8">ST8602A-5 φ6 L1000<br>20kΩ (25°C)</td><td></td></tr>
<tr><td rowspan="3">Others</td><td>Float Switch</td><td>S1L</td><td colspan="8">FS-0211B</td><td></td></tr>
<tr><td>Fuse</td><td>F1U</td><td colspan="8">250V 5A φ5.2</td><td></td></tr>
<tr><td>Transformer</td><td>T1R</td><td colspan="8">TR22H21R8</td><td></td></tr>
</table>

| Parts Name | | Symbol | Model FXZQ 20MVE | FXZQ 25MVE | FXZQ 32MVE | FXZQ 40MVE | FXZQ 50MVE | Remark |
|---|---|---|---|---|---|---|---|---|
| Remote Controller | Wired Remote Control | | BRC1A61 | | | | | Option |
| | Wireless Remote Control | | BRC7E530W | | | | | |
| Motors | Fan Motor | M1F | AC 220~240V 50Hz | | | | | |
| | | | 1φ55W 4P | | | | | |
| | | | Thermal Fuse 135°C | | | | | |
| | Capacitor, fan motor | C1 | 4.0μ F 400VAC | | | | | |
| | Drain Pump | M1P | AC220-240V (50Hz)<br>PLD-12230DM<br>Thermal Fuse 145°C | | | | | |
| | Swing Motor | M1S | MP35HCA [3P080801-1]<br>AC200~240V | | | | | |
| Thermistors | Thermistor (Suction Air) | R1T | ST8601A-1 φ4 L250<br>20kΩ (25°C) | | | | | |
| | Thermistor (for Heat Exchanger High Temp.) | R3T | ST8605-3 φ8 L630<br>20kΩ (25°C) | | | | | |
| | Thermistor (Heat Exchanger) | R2T | ST8602A-3 φ6 L630<br>20kΩ (25°C) | | | | | |
| Others | Float Switch | S1L | FS-0211 | | | | | |
| | Fuse | F1U | 250V 5A φ5.2 | | | | | |
| | Transformer | T1R | TR22H21R8 | | | | | |

| Parts Name | | Symbol | Model FXKQ 25MVE | FXKQ 32MVE | FXKQ 40MVE | FXKQ 63MVE | Remark |
|---|---|---|---|---|---|---|---|
| Remote Controller | Wired Remote Control | | BRC1A61 | | | | Option |
| | Wireless Remote Control | | BRC4C61 | | | | |
| Motors | Fan Motor | M1F | AC 220~240V 50Hz | | | | |
| | | | 1φ15W 4P | | 1φ20W 4P | 1φ45W 4P | |
| | | | Thermal Fuse 146°C | | Thermal protector 120°C : OFF 105°C : ON | | |
| | Drain Pump | M1P | AC 220-240V (50Hz)<br>PLD-12200DM<br>Thermal Fuse 145°C | | | | |
| | Swing Motor | M1S | MP35HCA [3P080801-1]<br>AC200~240V | | | | |
| Thermistors | Thermistor (Suction Air) | R1T | ST8601-13 φ4 L630<br>20kΩ (25°C) | | | | |
| | Thermistor (for Heat Exchanger High Temp.) | R3T | ST8605-7 φ8 L1600<br>20kΩ (25°C) | | | | |
| | Thermistor (Heat Exchanger) | R2T | ST8602A-7 φ6 L1600<br>20kΩ (25°C) | | | | |
| Others | Float Switch | S1L | FS-0211B | | | | |
| | Fuse | F1U | 250V 5A φ5.2 | | | | |
| | Transformer | T1R | TR22H21R8 | | | | |

| Parts Name | | Symbol | Model | | | | | | | | | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | FXSQ 20MVE | FXSQ 25MVE | FXSQ 32MVE | FXSQ 40MVE | FXSQ 50MVE | FXSQ 63MVE | FXSQ 80MVE | FXSQ 100MVE | FXSQ 125MVE | |
| Remote Controller | Wired Remote Control | | BRC1A62 | | | | | | | | | Option |
| | Wireless Remote Control | | BRC4C62 | | | | | | | | | |
| Motors | Fan Motor | M1F | AC 220~240V 50Hz | | | | | | | | | |
| | | | 1ϕ50W | | | 1ϕ65W | 1ϕ85W | 1ϕ125 W | 1ϕ225W | | | |
| | | | Thermal Fuse 152°C | | | | | | Thermal protector 135°C : OFF 87°C : ON | | | |
| | Drain Pump | M1P | AC220-240V (50Hz) PLD-12230DM Thermal Fuse 145°C | | | | | | | | | |
| Thermistors | Thermistor (Suction Air) | R1T | ST8601-4 ϕ4 L800 20kΩ (25°C) | | | | | | | | | |
| | Thermistor (for Heat Exchanger High Temp.) | R3T | ST8605-7 ϕ8 L1600 20kΩ (25°C) | | | | | | | | | |
| | Thermistor (Heat Exchanger) | R2T | ST8602A-6 ϕ6 L1250 20kΩ (25°C) | | | | | | | | | |
| Others | Float Switch | S1L | FS-0211B | | | | | | | | | |
| | Fuse | F1U | 250V 5A ϕ5.2 | | | | | | | | | |
| | Transformer | T1R | TR22H21R8 | | | | | | | | | |

| Parts Name | | Symbol | Model | | | | | | | | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | FXMQ 40MVE | FXMQ 50MVE | FXMQ 63MVE | FXMQ 80MVE | FXMQ 100MVE | FXMQ 125MVE | FXMQ 200MVE | FXMQ 250MVE | |
| Remote Controller | Wired Remote Control | | BRC1A62 | | | | | | | | Option |
| | Wireless Remote Control | | BRC4C62 | | | | | | | | |
| Motors | Fan Motor | M1F | AC 220~240V 50Hz | | | | | | | | |
| | | | 1ϕ100W | | | 1ϕ160W | 1ϕ270W | 1ϕ430W | 1ϕ380Wx2 | | |
| | | | Thermal protector 135°C : OFF 87°C : ON | | | | | | | | |
| | Capacitor for Fan Motor | C1R | 5µ F-400V | | | 7µ F 400V | 10µ F 400V | 8µ F 400V | 10µ F 400V | 12µ F 400V | |
| Thermistors | Thermistor (Suction Air) | R1T | ST8601A-5 ϕ4 L1000 20kΩ (25°C) | | | | | | ST8601A-13 ϕ4 L630 | | |
| | Thermistor (for Heat Exchanger High Temp.) | R3T | ST8605A-4 ϕ8 L800 20kΩ (25°C) | | | | | | ST8605A-5 ϕ8 L1000 | | |
| | Thermistor (Heat Exchanger) | R2T | ST8602A-4 ϕ6 L800 20kΩ (25°C) | | | | | | ST8602A-6 ϕ6 L1250 | | |
| Others | Float switch | S1L | FS-0211 | | | | | | | | |
| | Fuse | F1U | 250V 5A ϕ5.2 | | | 250V 10A ϕ5.2 | | | 250V 10A | | |
| | Transformer | T1R | TR22H21R8 | | | | | | | | |

| Parts Name | | Symbol | Model | | | Remark |
|---|---|---|---|---|---|---|
| | | | FXHQ 32MVE | FXHQ 63MVE | FXHQ 100MVE | |
| Remote Controller | Wired Remote Control | | BRC1A61 | | | Option |
| | Wireless Controller | | BRC7E63W | | | |
| Motors | Fan Motor | M1F | AC 220~240V/220V 50Hz/60Hz | | | |
| | | | 1φ63W | | 1φ130W | |
| | | | Thermal protector 130°C : OFF 80°C : ON | | | |
| | Capacitor for Fan Motor | C1R | 3.0μF-400V | | 9.0μF-400V | |
| | Swing Motor | M1S | MT8-L[3P058751-1] AC200~240V | | | |
| Thermistors | Thermistor (Suction Air) | R1T | ST8601A-1 φ4 L250 20kΩ (25°C) | | | |
| | Thermistor (for Heat Exchanger High Temp.) | R3T | ST8605-6 φ8 L = 1250 20kΩ (25°C) | | ST8605-6 φ8 L = 1250 20kΩ (25°C) | |
| | Thermistor (Heat Exchanger) | R2T | ST8602A-6 φ6 L = 1250 20kΩ (25°C) | | ST8602A-6 φ6 L = 1250 20kΩ (25°C) | |
| Others | Fuse | F1U | 250V 5A φ5.2 | | | |
| | Transformer | T1R | TR22H21R8 | | | |

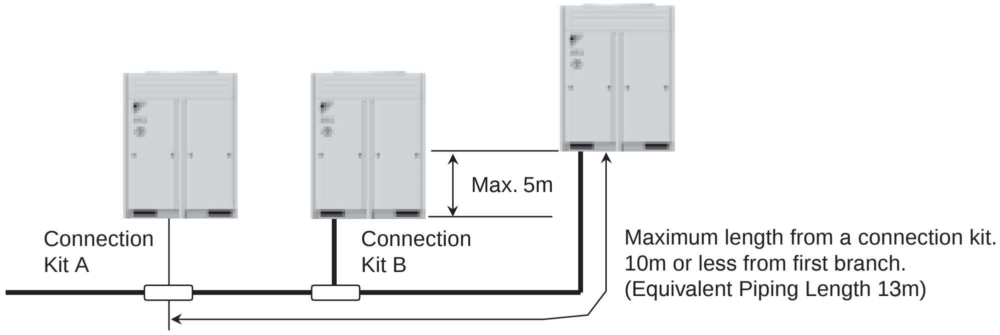
| Parts Name | | Symbol | Model | | | | | | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | | | FXAQ 20MVE | FXAQ 25MVE | FXAQ 32MVE | FXAQ 40MVE | FXAQ 50MVE | FXAQ 63MVE | |
| Remote Controller | Wired Remote Control | | BRC1A61 | | | | | | Option |
| | Wireless Remote Control | | BRC7E618 | | | | | | Option |
| Motors | Fan Motor | M1F | AC 220~240V 50Hz | | | | | | |
| | | | 1φ40W | | | 1φ43W | | | |
| | | | Thermal protector 130°C : OFF 80°C : ON | | | | | | |
| | Swing Motor | M1S | MP24[3SB40333-1] AC200~240V | | | MSFBC20C21 [3SB40550-1] AC200~240V | | | |
| Thermistors | Thermistor (Suction Air) | R1T | ST8601-2 φ4 L400 20kΩ (25°C) | | | | | | |
| | Thermistor (for Heat Exchanger High Temp.) | R3T | ST8605-2 φ8 L400 20kΩ (25°C) | | | | | | |
| | Thermistor (for Heat Exchanger) | R2T | ST8602-2 φ6 L400 20kΩ (25°C) | | | | | | |
| Others | Float Switch | S1L | OPTION | | | | | | |
| | Fuse | F1U | 250V 5A φ5.2 | | | | | | |

| Parts Name | | Symbol | Model | | | | | | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | | | FXLQ 20MVE | FXLQ 25MVE | FXLQ 32MVE | FXLQ 40MVE | FXLQ 50MVE | FXLQ 63MVE | |
| Remote Controller | Wired Remote Control | | BRC1A62 | | | | | | Option |
| | Wireless Remote Control | | BRC4C62 | | | | | | |
| Motors | Fan Motor | M1F | AC 220~240V 50Hz | | | | | | |
| | | | 1φ15W | | 1φ25W | | 1φ35W | | |
| | | | Thermal protector 135°C : OFF 120°C : ON | | | | | | |
| | Capacitor for Fan Motor | C1R | 1.0μF-400V | | 0.5μF-400V | 1.0μF-400V | 1.5μF-400V | 2.0μF-400V | |
| Thermistors | Thermistor (Suction Air) | R1T | ST8601-6 φ4 L1250 20kΩ (25°C) | | | | | | |
| | Thermistor (for Heat Exchanger High Temp.) | R3T | ST8605-9 φ8 L2500 20kΩ (25°C) | | | | | | |
| | Thermistor (for Heat Exchanger) | R2T | ST8602A-9 φ6 L2500 20kΩ (25°C) | | | | | | |
| Others | Fuse | F1U | AC250V 5A | | | | | | |
| | Transformer | T1R | TR22H21R8 | | | | | | |

| Parts Name | | Symbol | Model | | | | | | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | | | FXNQ 20MVE | FXNQ 25MVE | FXNQ 32MVE | FXNQ 40MVE | FXNQ 50MVE | FXNQ 63MVE | |
| Remote Controller | Wired Remote Control | | BRC1A62 | | | | | | Option |
| | Wireless Remote Control | | BRC4C62 | | | | | | |
| Motors | Fan Motor | M1F | AC 220~240V 50Hz | | | | | | |
| | | | 1φ15W | | 1φ25W | | 1φ35W | | |
| | | | Thermal protector 135°C : OFF 120°C : ON | | | | | | |
| | Capacitor for Fan Motor | C1R | 1.0μF-400V | | 0.5μF-400V | 1.0μF-400V | 1.5μF-400V | 2.0μF-400V | |
| Thermistors | Thermistor (Suction Air) | R1T | ST8601-6 φ4 L1250 20kΩ (25°C) | | | | | | |
| | Thermistor (for Heat Exchanger High Temp.) | R3T | ST8605-9 φ8 L2500 20kΩ (25°C) | | | | | | |
| | Thermistor (for Heat Exchanger) | R2T | ST8602A-9 φ6 L2500 20kΩ (25°C) | | | | | | |
| Others | Fuse | F1U | AC250V 5A | | | | | | |
| | Transformer | T1R | TR22H21R8 | | | | | | |

# 4. Piping Installation Point

## 4.1 Piping Installation Point



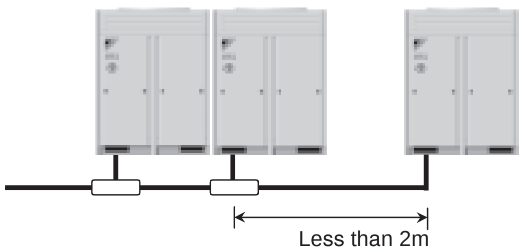

Since there is a possibility that oil may be collected on a stop machine side, install piping between outdoor units to go to level or go up to an outdoor unit, and to make a slope.

(V3084)

The projection part between multi connection piping kits

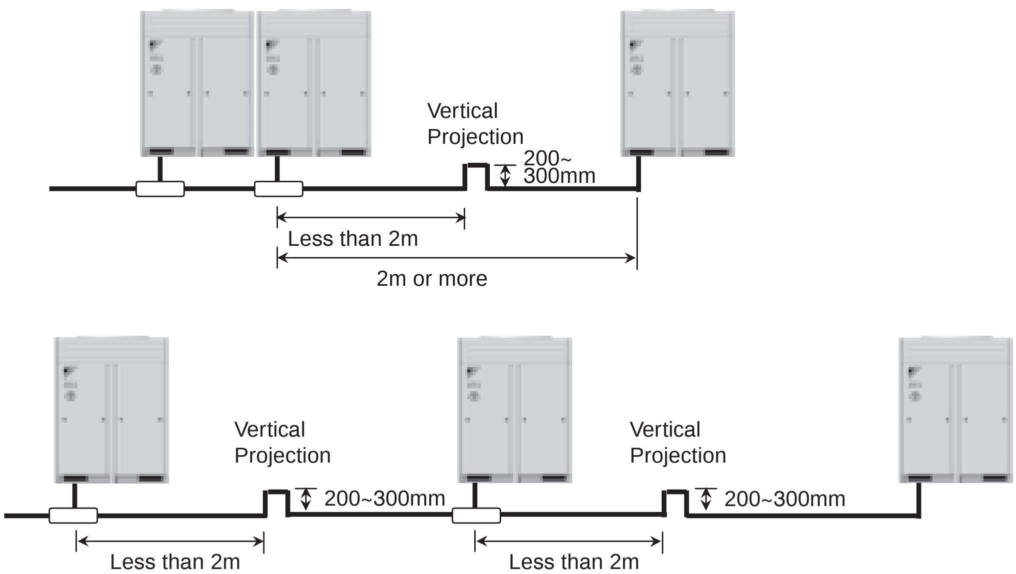
When the piping length between the multi connection kits or between multi connection kit and outdoor unit is 2m or more, prepare a vertical projection part (200mm or more as shown below) only on the gas pipe line location less than 2m from multi connection kit.

In the case of 2m or less



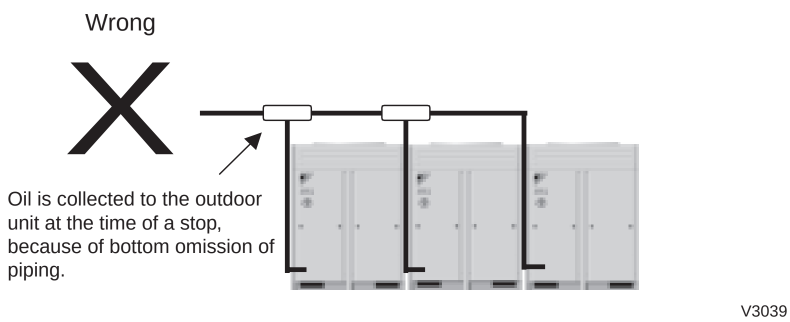

V3037

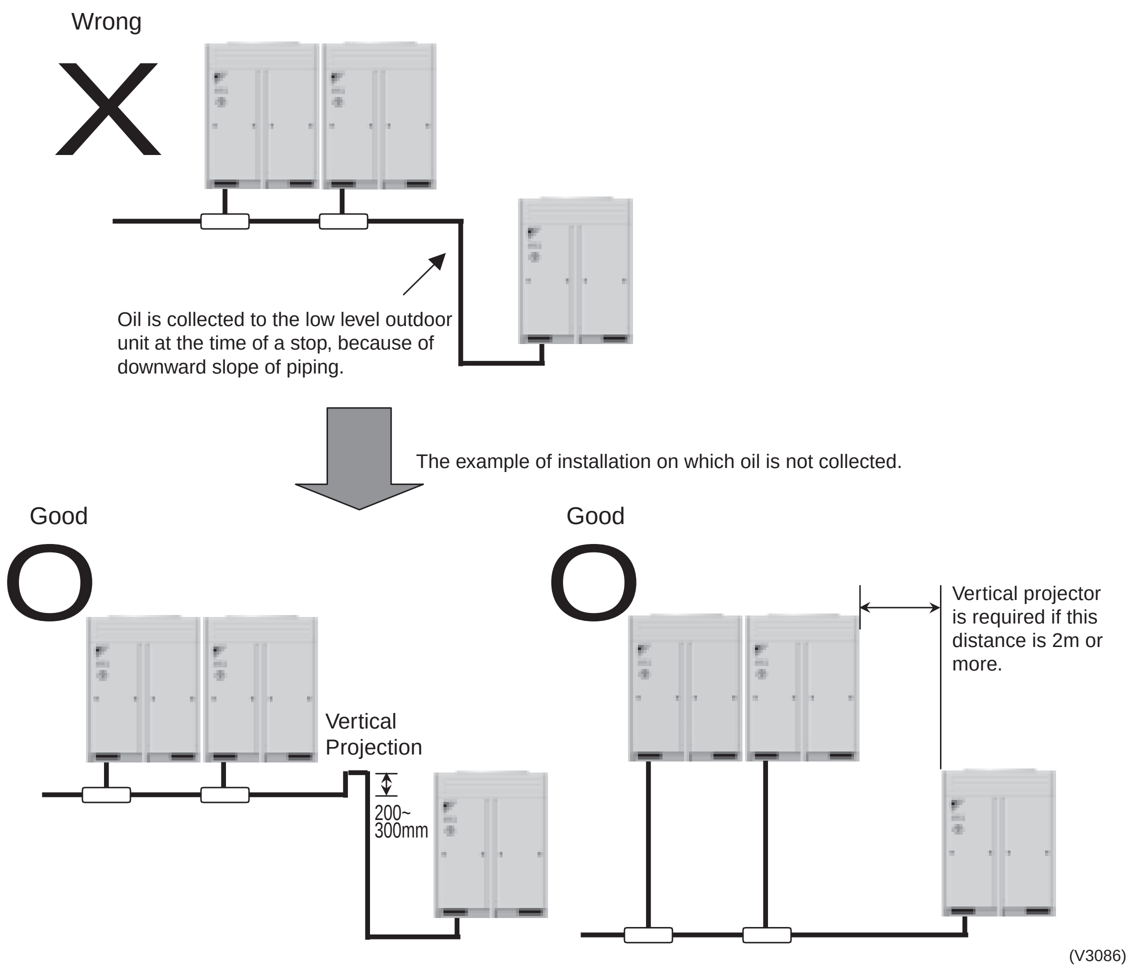
In the case of 2m or more




(V3085)

## 4.2 The Example of A Wrong Pattern

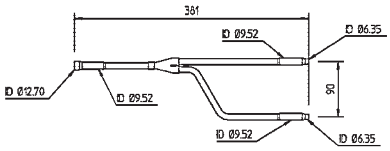
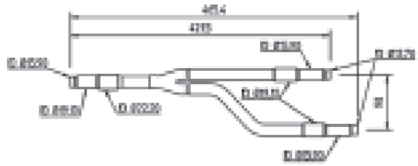
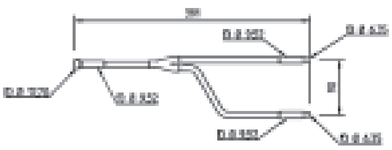
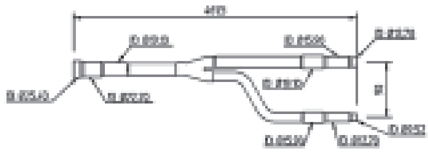
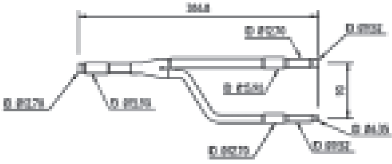
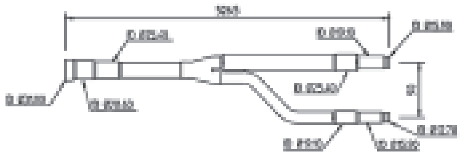
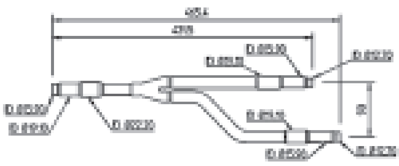
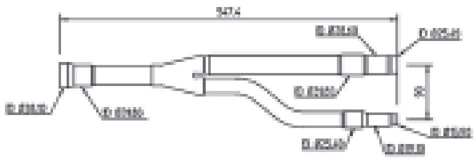



| | | |
|---|---|---|
| Max.allowable Piping Length | Outdoor Unit - Multi Connection Piping Kit | Actual piping length 10m or less, equivalent length 13m or less |
| | Multi Connection Piping Kit - Indoor Unit | Actual piping length 150m or less, equivalent length 175m or less, the total extension 300m or less |
| | REFNET Joint - Indoor Unit | Actual piping length 40m or less |
| Allowable Level Difference | Outdoor Unit - Outdoor Unit | 5m or less |
| | Outdoor Unit - Indoor Unit | 50m or less<br>(when an outdoor unit is lower than indoor units : 40m or less) |
| | Indoor Unit - Indoor Unit | 15m or less |

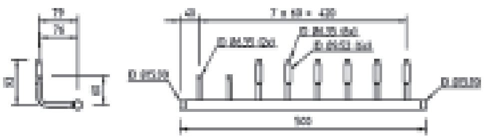
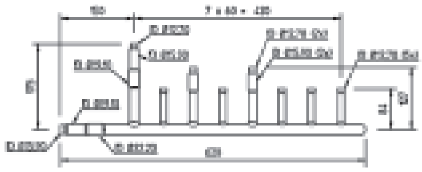
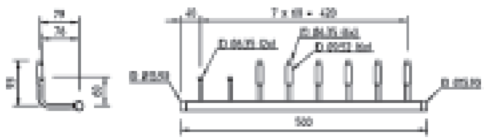
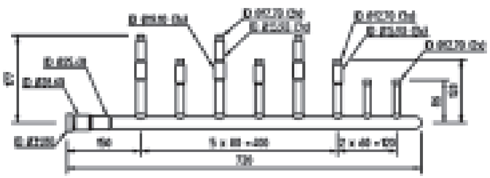
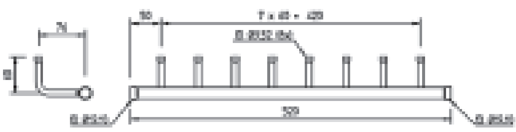
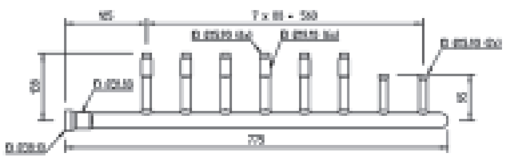
# 5. Refnet pipe system

## 5.1 Refnet joints

| | Liquid side junction | Suction gas side junction |
|---|---|---|
| KHRQ22M20T7 |  |  |
| KHRQ22M29T7 |  |  |
| KHRQ22M64T7 |  |  |
| KHRQ22M75T7 |  |  |

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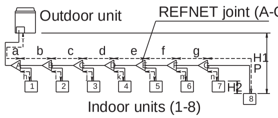
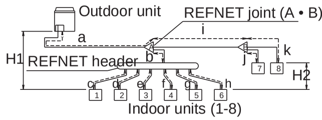
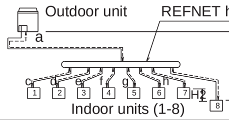
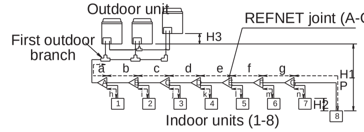
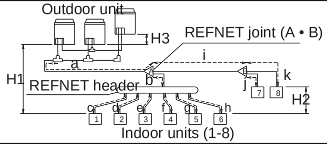
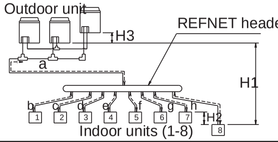
## 5.2 Refnet headers

| | Liquid side header | Suction gas side header |
|---|---|---|
| KHRQ22M29H7 |  |  |
| KHRQ22M64H7 |  |  |
| KHRQ22M75H7 |  |  |

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# 6. Refnet pipe selection

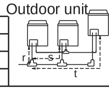
Example of connection
(Connection of 8 indoor units Heat pump system)

| | Branch with REFNET joint | Branch with REFNET joint and REFNET header | Branch with REFNET header |
|---|---|---|---|
| One outdoor unit installed (RXYQ5~16) |  |  |  |
| When multiple outdoor units are installed (RXYQ18~) |  |  |  |



* If the system capacity is RXYQ18 or more, re-read to the first outdoor branch as seen from the indoor unit.

| | | | Branch with REFNET joint | Branch with REFNET joint and REFNET header | Branch with REFNET header |
|---|---|---|---|---|---|
| Maximum allowable length | Between outdoor and indoor units | Actual pipe length | Pipe length between outdoor and indoor units 150m | | |
| | | | Example unit 8: a + b + c + d + e + f + g + p 150m | Example unit 6: a + b + h 150m, unit 8: a + i + k 150m | Example unit 8: a + i 150m |
| | | Equivalent length | Equivalent pipe length between outdoor and indoor units 175m (assume equivalent pipe length of refnet joint to be 0.5m, that of refnet header to be 1m, calculation purposes) | | |
| | | Total extension length | Total piping length from outdoor unit* to all indoor units 300m | | |
| | Between outdoor branch and indoor unit (Only for RXYQ18 or more) | Actual pipe length | Piping length from outdoor branch to outdoor unit 10m Approximately length: max 13m | | |
| Maximum allowable length | Between outdoor and indoor units | Difference in height | Difference in height between outdoor and indoor units (H1) 50m (Max 40m if the outdoor unit is below) | | |
| | Between indoor and indoor units | Difference in height | Difference in height between adjacent indoor units (H2) 15m | | |
| | Between outdoor and outdoor units | Difference in height | Difference in height between outdoor unit (main) and outdoor unit (sub) (H3) 5m | | |
| Allowable length after the branch | | Actual pipe length | Pipe length from first refrigerant branch kit (either refnet joint or refnet header ) to indoor unit 40m | | |
| | | | Example unit 8: b + c + d + e + f + g + p 40m | Example unit 6: b + h 40m, unit 8: i + k 40m | Example unit 8: i 40m |





r 10m (Approximate length: max 13m)
s 10m (Approximate length: max 13m)
t 10m (Approximate length: max 13m)

Refrigerant branch kit selection

Refrigerant branch kits can only be used with R-410A.

How to select the REFNET joint• When using REFNET joints at the first branch counted from the outdoor unit side. Choose from the following table in accordance with the capacity of the outdoor unit.

First branch after the outdoor unit has to be selected from "Outdoor unit capacity type" table. Even if it is contradictory to the "indoor capacity index" table.

| Outdoor unit capacity type | REFNET joints |
|---|---|
| RXYQ5 | KHRQ22M20T7 |
| RXYQ8, 10 | KHRQ22M29T7 |
| RXYQ12~22 | KHRQ22M64T7 |
| RXYQ24~ | KHRQ22M75T7 |

• For refnet joints other than the first branch, select the proper branch kit model based on the total capacity index.

| Indoor capacity index | REFNET joints |
|---|---|
| < 200 | KHRQ22M20T7 |
| 200 x < 290 | KHRQ22M29T7 |
| 290 x < 640 | KHRQ22M64T7 |
| 640 < | KHRQ22M75T7 |

How to select the REFNET header
• Choose from the following table in accordance with the total capacity of all the indoor units connected below the REFNET header.

| indoor capacity index | REFNET headers |
|---|---|
| < 200 | KHRQ22M29H7 (Max 8 branches) |
| < 290 | KHRQ22M29H7 (Max 8 branches) |
| 290 x < 640 | KHRQ22M64H7 (Max 8 branches) |
| 640 < | KHRQ22M75H7 (Max 8 branches) |

How to choose an outdoor branch kit (needed if the outdoor unit capacity type is RXYQ18 or more.)
• Choose from the following table in accordance with the number of outdoor units.

| Number of outdoor units | Outdoor unit multi piping connection kit |
|---|---|
| 2 units | BHFQ22M907 |
| 3 units | BHFQ22M1357 |

Example of downstream indoor units

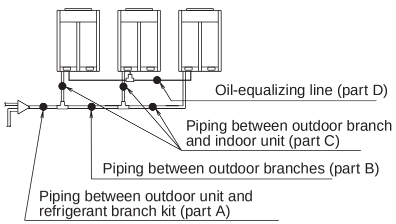
example in case of refnet joint C; indoor units 3 + 4 + 5 + 6 + 7 + 8

example in case of refnet joint B indoor units 7 + 8,
example in case of refnet header; indoor units 1 + 2 + 3 + 4 + 5 + 6

example in the case of refnet header; indoor units 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8

Pipe size selection

For an outdoor unit multi installation (RXYQ18~48MY1B), make the settings in accordance with the following figure.





Piping between outdoor unit and refrigerant branch kit (part A)
• Match to the size of the connection piping on the outdoor unit.
Outdoor unit connection piping size (Unit: mm)

| Outdoor unit capacity type | Piping size (outer diameter x minimum thickness) Gas pipe | Liquid pipe |
|---|---|---|
| RXYQ5 | ø15.9 x 0.99 | ø9.5 x 0.80 |
| RXYQ8 | ø19.1 x 0.80 | |
| RXYQ10 | ø22.2 x 0.80 | |
| RXYQ12, 14, 16 | ø28.6 x 0.99 | ø12.7 x 0.80 |
| RXYQ18~22 | | ø15.9 x 0.99 |
| RXYQ24 | ø34.9 x 1.21 | |
| RXYQ26~34 | | ø19.1 x 0.80 |
| RXYQ36~48 | ø41.3 x 1.43 | |

Piping between refrigerant branch kits
• Choose from the following table in accordance with the total capacity of all the indoor units connected below this.
• Do not let the connection piping exceed the refrigerant piping size chosen by genenal system model name. (Unit: mm)

| indoor capacity index | Piping size (outer diameter x minimum thickness) Gas pipe | Liquid pipe |
|---|---|---|
| < 200 | ø15.9 x 0.99 | ø9.5 x 0.80 |
| 200 x < 290 | ø22.2 x 0.80 | |
| 290 x < 420 | ø28.6 x 0.99 | ø12.7 x 0.80 |
| 420 x < 640 | | ø15.9 x 0.99 |
| 640 x < 920 | ø34.9 x 1.21 | ø19.1 x 0.80 |
| 920 < | ø41.3 x 1.43 | |

Piping between outdoor branches (part B)
• Choose from the following table in accordance with the total capacity of all the outdoor units connected above this. (Unit: mm)

| outdoor capacity index | Piping size (outer diameter x minimum thickness) Gas pipe | Liquid pipe |
|---|---|---|
| < 22HP | ø28.6 x 0.99 | ø15.9 x 0.99 |
| 24HP | ø34.9 x 1.21 | |
| 26HP < | | ø19.1 x 0.80 |

Between refrigerant branch kit and indoor unit
• Pipe size for direct connection to indoor unit must be the same as the connection size of indoor unit. (Unit: mm)

| indoor capacity index | Piping size (outer diameter x minimum thickness) Gas pipe | Liquid pipe |
|---|---|---|
| 20, 25, 32, 40, 50 type | ø12.7 x 0.80 | ø6.4 x 0.80 |
| 63, 80, 100, 125 type | ø15.9 x 0.99 | ø9.5 x 0.80 |
| 200 type | ø19.1 x 0.80 | |
| 250 type | ø22.2 x 0.80 | |

Piping between outdoor branch and outdoor unit (part C) (Unit:mm)

| outdoor capacity index | Piping size (outer diameter x minimum thickness) Gas pipe | Liquid pipe |
|---|---|---|
| RXYQ8 type | ø19.1 x 0.80 | ø9.5 x 0.80 |
| RXYQ10 type | ø22.2 x 0.80 | |
| RXYQ12, 14, 16 type | ø28.6 x 0.99 | ø12.7 x 0.80 |

Oil-equalizing line (Only for RXYQ18 or more) (part D)

| Piping size (outer diameter x minimum thickness) | ø6.4 x 0.80 |
|---|---|

(Unit:mm)

How to calculate the additional refrigerant to be charged

Additional refrigerant to be charged R (Kg)
R should be rounded off in units of 0.1Kg.

**NOTE**
If a negative result is gotten for R from the formula at right, no refrigerant needs to be added.

R = (Total length (m) of liquid piping size at ø22.2) x 0.35 + (Total length (m) of liquid piping size at ø19.1) x 0.25 + (Total length (m) of liquid piping size at ø15.9) x 0.17 + (Total length (m) of liquid piping size at ø12.7) x 0.11
+ (Total length (m) of liquid piping size at ø9.5) x 0.054 + (Total length (m) of liquid piping size at ø6.4) x 0.022 –

| Model name | |
|---|---|
| RXYQ5~16MY1B | 0 kg |
| RXYQ18~32MY1B | 3 kg |
| RXYQ34~48MY1B | 6 kg |

Example for refrigerant branch using refnet joint and refnet header for RXYQ34MY1B

If the outdoor unit is RXYQ34MY1B and the piping lengths are as at right

| | | | |
|---|---|---|---|
| a: ø19.1 x 30m | d: ø9.5 x 10m | g: ø6.4 x 10m | j : ø6.4 x 10m |
| b: ø15.9 x 10m | e: ø9.5 x 10m | h: ø6.4 x 20m | k: ø6.4 x 9m |
| c: ø9.5 x 10m | f : ø9.5 x 10m | i : ø12.7 x 10m | |

R = 30 x 0.25 + 10 x 0.17 + 10 x 0.11 + 40 x 0.054 + 49 x 0.022 - 6 = 7.538
a b i c+d+e+fg+h+j+k
75

# 7. Thermistor Resistance / Temperature Characteristics

| | | |
|---|---|---|
| Indoor unit | For air suction | R1T |
| | For liquid pipe | R2T |
| | For gas pipe | R3T |
| Outdoor unit | For outdoor air | R1T |
| | For coil | R2T |
| | For suction pipe | R4T |
| | For Receiver gas pipe | R5T |

(kΩ)

| T°C | 0.0 | 0.5 | T°C | 0.0 | 0.5 |
|---|---|---|---|---|---|
| -20 | 197.81 | 192.08 | 30 | 16.10 | 15.76 |
| -19 | 186.53 | 181.16 | 31 | 15.43 | 15.10 |
| -18 | 175.97 | 170.94 | 32 | 14.79 | 14.48 |
| -17 | 166.07 | 161.36 | 33 | 14.18 | 13.88 |
| -16 | 156.80 | 152.38 | 34 | 13.59 | 13.31 |
| -15 | 148.10 | 143.96 | 35 | 13.04 | 12.77 |
| -14 | 139.94 | 136.05 | 36 | 12.51 | 12.25 |
| -13 | 132.28 | 128.63 | 37 | 12.01 | 11.76 |
| -12 | 125.09 | 121.66 | 38 | 11.52 | 11.29 |
| -11 | 118.34 | 115.12 | 39 | 11.06 | 10.84 |
| -10 | 111.99 | 108.96 | 40 | 10.63 | 10.41 |
| -9 | 106.03 | 103.18 | 41 | 10.21 | 10.00 |
| -8 | 100.41 | 97.73 | 42 | 9.81 | 9.61 |
| -7 | 95.14 | 92.61 | 43 | 9.42 | 9.24 |
| -6 | 90.17 | 87.79 | 44 | 9.06 | 8.88 |
| -5 | 85.49 | 83.25 | 45 | 8.71 | 8.54 |
| -4 | 81.08 | 78.97 | 46 | 8.37 | 8.21 |
| -3 | 76.93 | 74.94 | 47 | 8.05 | 7.90 |
| -2 | 73.01 | 71.14 | 48 | 7.75 | 7.60 |
| -1 | 69.32 | 67.56 | 49 | 7.46 | 7.31 |
| 0 | 65.84 | 64.17 | 50 | 7.18 | 7.04 |
| 1 | 62.54 | 60.96 | 51 | 6.91 | 6.78 |
| 2 | 59.43 | 57.94 | 52 | 6.65 | 6.53 |
| 3 | 56.49 | 55.08 | 53 | 6.41 | 6.53 |
| 4 | 53.71 | 52.38 | 54 | 6.65 | 6.53 |
| 5 | 51.09 | 49.83 | 55 | 6.41 | 6.53 |
| 6 | 48.61 | 47.42 | 56 | 6.18 | 6.06 |
| 7 | 46.26 | 45.14 | 57 | 5.95 | 5.84 |
| 8 | 44.05 | 42.98 | 58 | 5.74 | 5.43 |
| 9 | 41.95 | 40.94 | 59 | 5.14 | 5.05 |
| 10 | 39.96 | 39.01 | 60 | 4.96 | 4.87 |
| 11 | 38.08 | 37.18 | 61 | 4.79 | 4.70 |
| 12 | 36.30 | 35.45 | 62 | 4.62 | 4.54 |
| 13 | 34.62 | 33.81 | 63 | 4.46 | 4.38 |
| 14 | 33.02 | 32.25 | 64 | 4.30 | 4.23 |
| 15 | 31.50 | 30.77 | 65 | 4.16 | 4.08 |
| 16 | 30.06 | 29.37 | 66 | 4.01 | 3.94 |
| 17 | 28.70 | 28.05 | 67 | 3.88 | 3.81 |
| 18 | 27.41 | 26.78 | 68 | 3.75 | 3.68 |
| 19 | 26.18 | 25.59 | 69 | 3.62 | 3.56 |
| 20 | 25.01 | 24.45 | 70 | 3.50 | 3.44 |
| 21 | 23.91 | 23.37 | 71 | 3.38 | 3.32 |
| 22 | 22.85 | 22.35 | 72 | 3.27 | 3.21 |
| 23 | 21.85 | 21.37 | 73 | 3.16 | 3.11 |
| 24 | 20.90 | 20.45 | 74 | 3.06 | 3.01 |
| 25 | 20.00 | 19.56 | 75 | 2.96 | 2.91 |
| 26 | 19.14 | 18.73 | 76 | 2.86 | 2.82 |
| 27 | 18.32 | 17.93 | 77 | 2.77 | 2.72 |
| 28 | 17.54 | 17.17 | 78 | 2.68 | 2.64 |
| 29 | 16.80 | 16.45 | 79 | 2.60 | 2.55 |
| 30 | 16.10 | 15.76 | 80 | 2.51 | 2.47 |

## Outdoor Unit Thermistors for Discharge Pipe (R3T)

(kΩ))

| T°C | 0.0 | 0.5 | T°C | 0.0 | 0.5 | T°C | 0.0 | 0.5 |
|---|---|---|---|---|---|---|---|---|
| 0 | 640.44 | 624.65 | 50 | 72.32 | 70.96 | 100 | 13.35 | 13.15 |
| 1 | 609.31 | 594.43 | 51 | 69.64 | 68.34 | 101 | 12.95 | 12.76 |
| 2 | 579.96 | 565.78 | 52 | 67.06 | 65.82 | 102 | 12.57 | 12.38 |
| 3 | 552.00 | 538.63 | 53 | 64.60 | 63.41 | 103 | 12.20 | 12.01 |
| 4 | 525.63 | 512.97 | 54 | 62.24 | 61.09 | 104 | 11.84 | 11.66 |
| 5 | 500.66 | 488.67 | 55 | 59.97 | 58.87 | 105 | 11.49 | 11.32 |
| 6 | 477.01 | 465.65 | 56 | 57.80 | 56.75 | 106 | 11.15 | 10.99 |
| 7 | 454.60 | 443.84 | 57 | 55.72 | 54.70 | 107 | 10.83 | 10.67 |
| 8 | 433.37 | 423.17 | 58 | 53.72 | 52.84 | 108 | 10.52 | 10.36 |
| 9 | 413.24 | 403.57 | 59 | 51.98 | 50.96 | 109 | 10.21 | 10.06 |
| 10 | 394.16 | 384.98 | 60 | 49.96 | 49.06 | 110 | 9.92 | 9.78 |
| 11 | 376.05 | 367.35 | 61 | 48.19 | 47.33 | 111 | 9.64 | 9.50 |
| 12 | 358.88 | 350.62 | 62 | 46.49 | 45.67 | 112 | 9.36 | 9.23 |
| 13 | 342.58 | 334.74 | 63 | 44.86 | 44.07 | 113 | 9.10 | 8.97 |
| 14 | 327.10 | 319.66 | 64 | 43.30 | 42.54 | 114 | 8.84 | 8.71 |
| 15 | 312.41 | 305.33 | 65 | 41.79 | 41.06 | 115 | 8.59 | 8.47 |
| 16 | 298.45 | 291.73 | 66 | 40.35 | 39.65 | 116 | 8.35 | 8.23 |
| 17 | 285.18 | 278.80 | 67 | 38.96 | 38.29 | 117 | 8.12 | 8.01 |
| 18 | 272.58 | 266.51 | 68 | 37.63 | 36.98 | 118 | 7.89 | 7.78 |
| 19 | 260.60 | 254.72 | 69 | 36.34 | 35.72 | 119 | 7.68 | 7.57 |
| 20 | 249.00 | 243.61 | 70 | 35.11 | 34.51 | 120 | 7.47 | 7.36 |
| 21 | 238.36 | 233.14 | 71 | 33.92 | 33.35 | 121 | 7.26 | 7.16 |
| 22 | 228.05 | 223.08 | 72 | 32.78 | 32.23 | 122 | 7.06 | 6.97 |
| 23 | 218.24 | 213.51 | 73 | 31.69 | 31.15 | 123 | 6.87 | 6.78 |
| 24 | 208.90 | 204.39 | 74 | 30.63 | 30.12 | 124 | 6.69 | 6.59 |
| 25 | 200.00 | 195.71 | 75 | 29.61 | 29.12 | 125 | 6.51 | 6.42 |
| 26 | 191.53 | 187.44 | 76 | 28.64 | 28.16 | 126 | 6.33 | 6.25 |
| 27 | 183.46 | 179.57 | 77 | 27.69 | 27.24 | 127 | 6.16 | 6.08 |
| 28 | 175.77 | 172.06 | 78 | 26.79 | 26.35 | 128 | 6.00 | 5.92 |
| 29 | 168.44 | 164.90 | 79 | 25.91 | 25.49 | 129 | 5.84 | 5.76 |
| 30 | 161.45 | 158.08 | 80 | 25.07 | 24.66 | 130 | 5.69 | 5.61 |
| 31 | 154.79 | 151.57 | 81 | 24.26 | 23.87 | 131 | 5.54 | 5.46 |
| 32 | 148.43 | 145.37 | 82 | 23.48 | 23.10 | 132 | 5.39 | 5.32 |
| 33 | 142.37 | 139.44 | 83 | 22.73 | 22.36 | 133 | 5.25 | 5.18 |
| 34 | 136.59 | 133.79 | 84 | 22.01 | 21.65 | 134 | 5.12 | 5.05 |
| 35 | 131.06 | 128.39 | 85 | 21.31 | 20.97 | 135 | 4.98 | 4.92 |
| 36 | 125.79 | 123.24 | 86 | 20.63 | 20.31 | 136 | 4.86 | 4.79 |
| 37 | 120.76 | 118.32 | 87 | 19.98 | 19.67 | 137 | 4.73 | 4.67 |
| 38 | 115.95 | 113.62 | 88 | 19.36 | 19.05 | 138 | 4.61 | 4.55 |
| 39 | 111.35 | 109.13 | 89 | 18.75 | 18.46 | 139 | 4.49 | 4.44 |
| 40 | 106.96 | 104.84 | 90 | 18.17 | 17.89 | 140 | 4.38 | 4.32 |
| 41 | 102.76 | 100.73 | 91 | 17.61 | 17.34 | 141 | 4.27 | 4.22 |
| 42 | 98.75 | 96.81 | 92 | 17.07 | 16.80 | 142 | 4.16 | 4.11 |
| 43 | 94.92 | 93.06 | 93 | 16.54 | 16.29 | 143 | 4.06 | 4.01 |
| 44 | 91.25 | 89.47 | 94 | 16.04 | 15.79 | 144 | 3.96 | 3.91 |
| 45 | 87.74 | 86.04 | 95 | 15.55 | 15.31 | 145 | 3.86 | 3.81 |
| 46 | 84.38 | 82.75 | 96 | 15.08 | 14.85 | 146 | 3.76 | 3.72 |
| 47 | 81.16 | 79.61 | 97 | 14.62 | 14.40 | 147 | 3.67 | 3.62 |
| 48 | 78.09 | 76.60 | 98 | 14.18 | 13.97 | 148 | 3.58 | 3.54 |
| 49 | 75.14 | 73.71 | 99 | 13.76 | 13.55 | 149 | 3.49 | 3.45 |
| 50 | 72.32 | 70.96 | 100 | 13.35 | 13.15 | 150 | 3.41 | 3.37 |

# 8. Pressure Sensor

$P_H = 1.38V - 0.69$

$P_L = 0.57V - 0.28$

$P_H$ : High pressure (MPa)

$V_L$ : Low pressure (MPa)

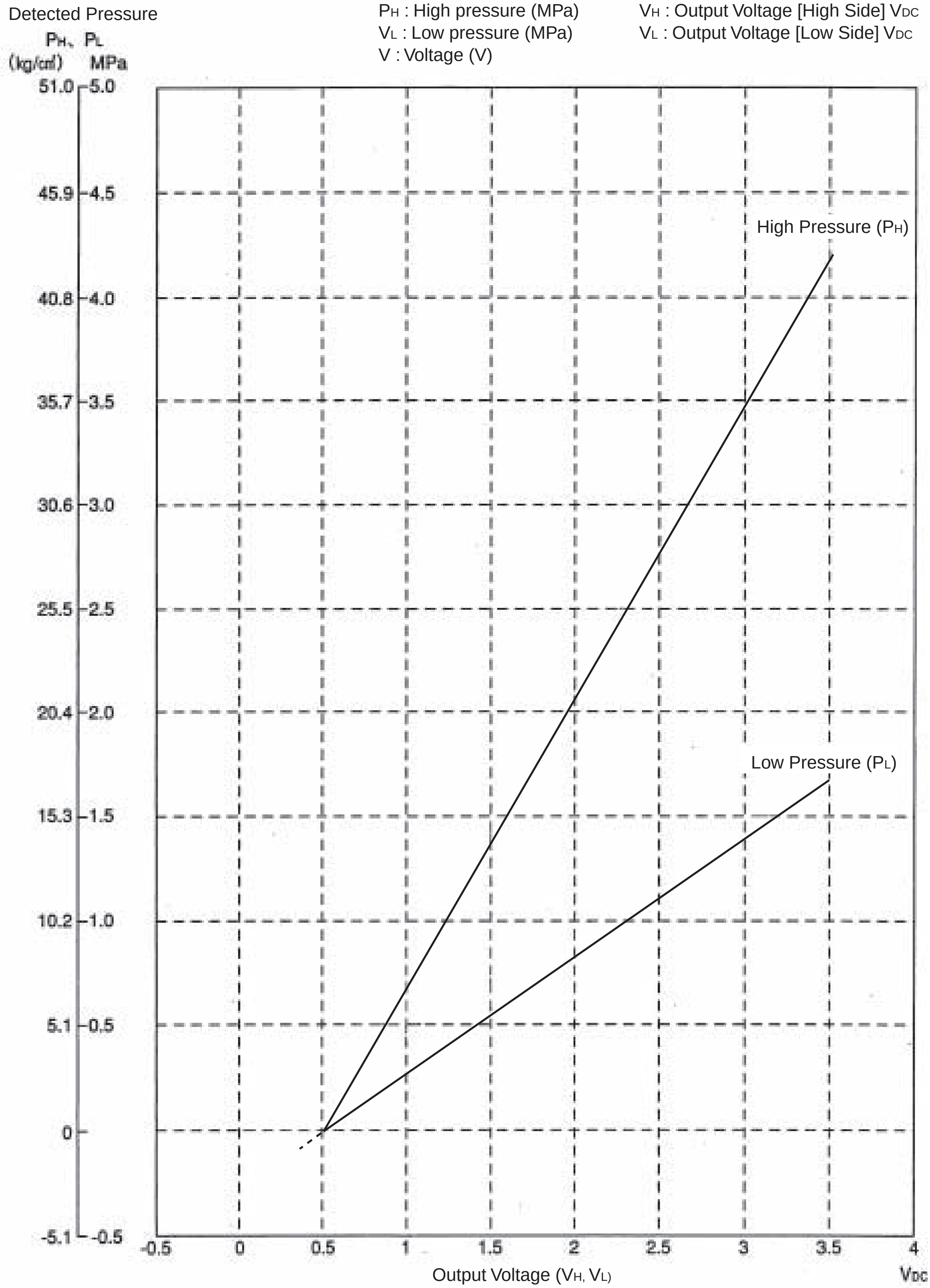
V : Voltage (V)

$P_H$ : Detected Pressure [High Side] MPa

$P_L$ : Detected Pressure [Low Side] MPa

$V_H$ : Output Voltage [High Side] $V_{DC}$

$V_L$ : Output Voltage [Low Side] $V_{DC}$

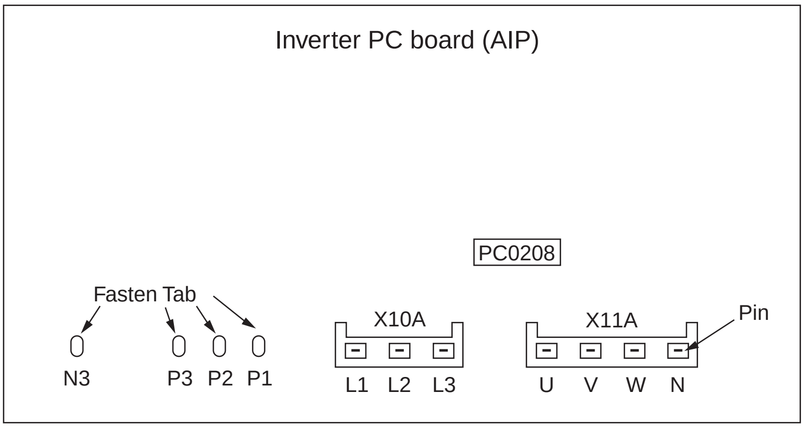



(V3053)

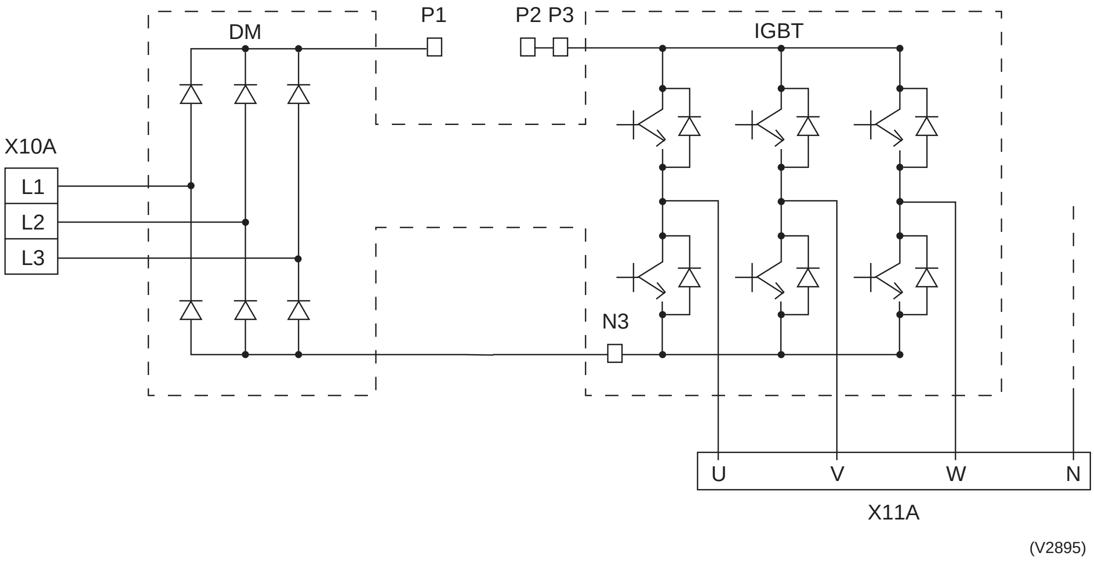
# 9. Method of Replacing The Inverter's Power Transistors and Diode Modules

## 9.1 Method of Replacing The Inverter's Power Transistors and Diode Modules

Inverter P.C.Board



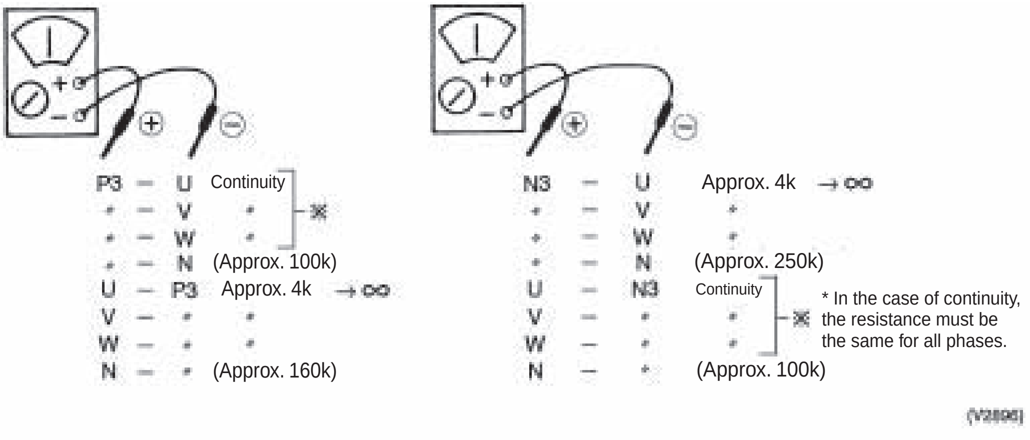

Electronic circuit




[Decision according to continuity check by analog tester]

■ Before checking, disconnect the electric wiring connected to the power transistor and diode module.

**Power Transistor IGBT (On Inverter PC Board)**



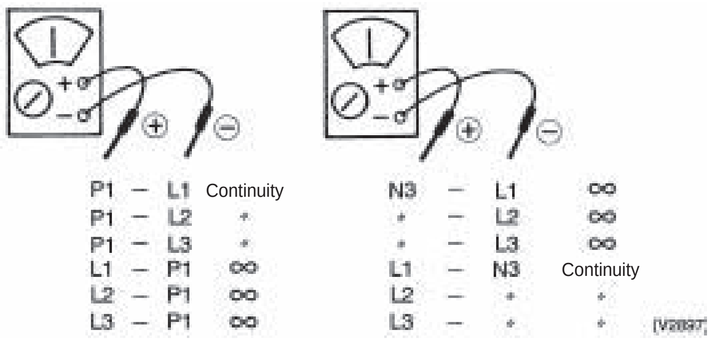

**(Decision)**
If other than given above, the power unit is defective and must be replaced.

**Note:**

If using a digital tester, • and continuity may be reversed.

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### Diode Module




**(Decision)**
If other than given above, the diode module is defective and must be replaced.

**Note:**

If using a digital tester, • and continuity may be reversed.

# Part 9 Precautions for New Refrigerant (R410)

# 1. Precautions for New Refrigerant (R410)

## 1.1 Outline

### 1.1.1 About Refrigerant R410A

■ Characteristics of new refrigerant, R410A

1. Performance
   Almost the same performance as R22 and R407C
2. Pressure
   Working pressure is approx. 1.4 times more than R22 and R407C.
3. Refrigerant composition
   Few problems in composition control, since it is a Quasi-azeotropic mixture refrigerant.

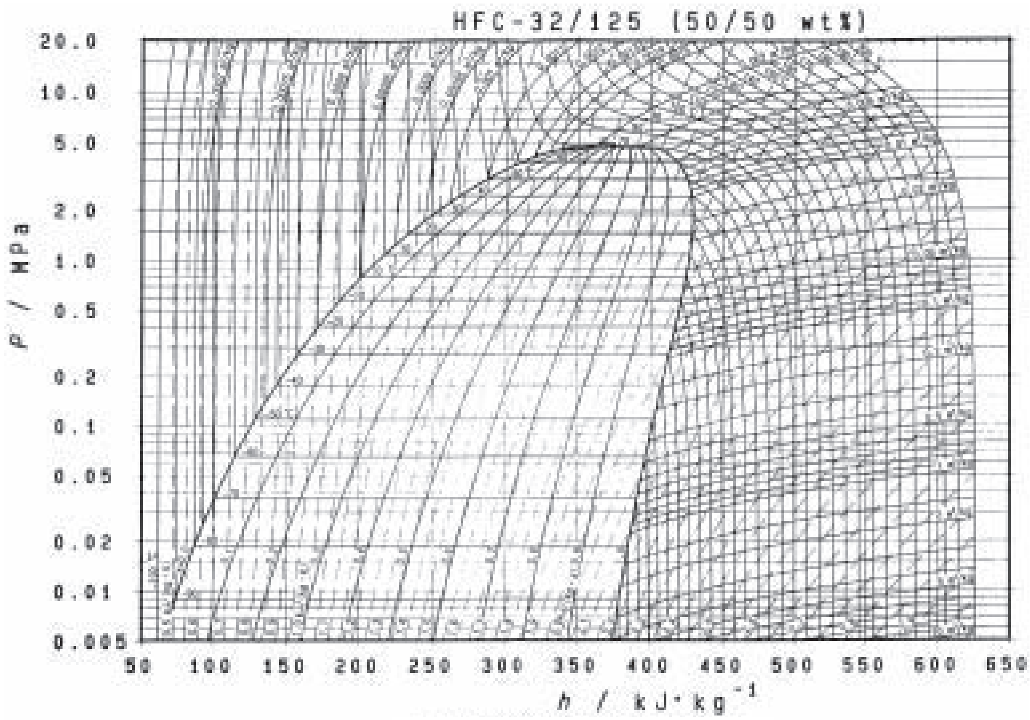
| | HFC units (Units using new refrigerants) | | HCFC units |
|---|---|---|---|
| Refrigerant name | R407C | R410A | R22 |
| Composing substances | Non-azeotropic mixture of HFC32, HFC125 and HFC134a (*1) | Quasi-azeotropic mixture of HFC32 and JFC125 (*1) | Single-component refrigerant |
| Design pressure | 3.2 Mpa (gauge pressure) = 32.6 kgf/cm$^2$ | 4.15 Mpa (gauge pressure) = 42.3 kgf/cm$^2$ | 2.75 Mpa (gauge pressure) = 28.0 kgf/cm$^2$ |
| Refrigerant oil | Synthetic oil (Ether) | | Mineral oil (Suniso) |
| Ozone destruction factor (ODP) | 0 | 0 | 0.05 |
| Combustibility | None | None | None |
| Toxicity | None | None | None |

★1. Non-azeotropic mixture refrigerant: mixture of two or more refrigerants having different boiling points.

★2. Quasi-azeotropic mixture refrigerant: mixture of two or more refrigerants having similar boiling points.

★3. The design pressure is different at each product. Please refer to the installation manual for each product.

(Reference) 1 Mpa ≒ 1  0.19716 kgf / cm$^2$




Pressure-Enthal curves of HFC-32/125 (50/50wt%)

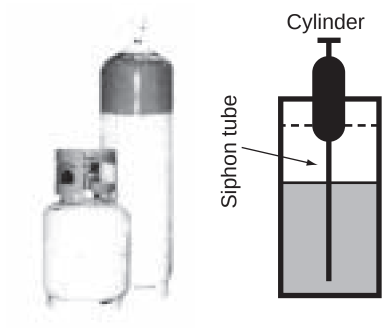
■ Thermodynamic characteristic of R410A

DAIREP ver2.0

| Temperature (°C) | Steam pressure (kPa) | | Density (kg/m³) | | Specific heat at constant pressure (kJ/kgK) | | Specific enthalpy (kJ/kg) | | Specific entropy (kJ/KgK) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Liquid | Vapor | Liquid | Vapor | Liquid | Vapor | Liquid | Vapor | Liquid | Vapor |
| -70 | 36.13 | 36.11 | 1410.7 | 1.582 | 1.372 | 0.695 | 100.8 | 390.6 | 0.649 | 2.074 |
| -68 | 40.83 | 40.80 | 1404.7 | 1.774 | 1.374 | 0.700 | 103.6 | 391.8 | 0.663 | 2.066 |
| -66 | 46.02 | 45.98 | 1398.6 | 1.984 | 1.375 | 0.705 | 106.3 | 393.0 | 0.676 | 2.058 |
| -64 | 51.73 | 51.68 | 1392.5 | 2.213 | 1.377 | 0.710 | 109.1 | 394.1 | 0.689 | 2.051 |
| -62 | 58.00 | 57.94 | 1386.4 | 2.463 | 1.378 | 0.715 | 111.9 | 395.3 | 0.702 | 2.044 |
| -60 | 64.87 | 64.80 | 1380.2 | 2.734 | 1.379 | 0.720 | 114.6 | 396.4 | 0.715 | 2.037 |
| -58 | 72.38 | 72.29 | 1374.0 | 3.030 | 1.380 | 0.726 | 117.4 | 397.6 | 0.728 | 2.030 |
| -56 | 80.57 | 80.46 | 1367.8 | 3.350 | 1.382 | 0.732 | 120.1 | 398.7 | 0.741 | 2.023 |
| -54 | 89.49 | 89.36 | 1361.6 | 3.696 | 1.384 | 0.737 | 122.9 | 399.8 | 0.754 | 2.017 |
| -52 | 99.18 | 99.03 | 1355.3 | 4.071 | 1.386 | 0.744 | 125.7 | 400.9 | 0.766 | 2.010 |
| -51.58 | 101.32 | 101.17 | 1354.0 | 4.153 | 1.386 | 0.745 | 126.3 | 401.1 | 0.769 | 2.009 |
| -50 | 109.69 | 109.51 | 1349.0 | 4.474 | 1.388 | 0.750 | 128.5 | 402.0 | 0.779 | 2.004 |
| -48 | 121.07 | 120.85 | 1342.7 | 4.909 | 1.391 | 0.756 | 131.2 | 403.1 | 0.791 | 1.998 |
| -46 | 133.36 | 133.11 | 1336.3 | 5.377 | 1.394 | 0.763 | 134.0 | 404.1 | 0.803 | 1.592 |
| -44 | 146.61 | 146.32 | 1330.0 | 5.880 | 1.397 | 0.770 | 136.8 | 405.2 | 0.816 | 1.987 |
| -42 | 160.89 | 160.55 | 1323.5 | 6.419 | 1.401 | 0.777 | 139.6 | 406.2 | 0.828 | 1.981 |
| -40 | 176.24 | 175.85 | 1317.0 | 6.996 | 1.405 | 0.785 | 142.4 | 407.3 | 0.840 | 1.976 |
| -38 | 192.71 | 192.27 | 1310.5 | 7.614 | 1.409 | 0.792 | 145.3 | 408.3 | 0.852 | 1.970 |
| -36 | 210.37 | 209.86 | 1304.0 | 8.275 | 1.414 | 0.800 | 148.1 | 409.3 | 0.864 | 1.965 |
| -34 | 229.26 | 228.69 | 1297.3 | 8.980 | 1.419 | 0.809 | 150.9 | 410.2 | 0.875 | 1.960 |
| -32 | 249.46 | 248.81 | 1290.6 | 9.732 | 1.424 | 0.817 | 153.8 | 411.2 | 0.887 | 1.955 |
| -30 | 271.01 | 270.28 | 1283.9 | 10.53 | 1.430 | 0.826 | 156.6 | 412.1 | 0.899 | 1.950 |
| -28 | 293.99 | 293.16 | 1277.1 | 11.39 | 1.436 | 0.835 | 159.5 | 413.1 | 0.911 | 1.946 |
| -26 | 318.44 | 317.52 | 1270.2 | 12.29 | 1.442 | 0.844 | 162.4 | 414.0 | 0.922 | 1.941 |
| -24 | 344.44 | 343.41 | 1263.3 | 13.26 | 1.448 | 0.854 | 165.3 | 414.9 | 0.934 | 1.936 |
| -22 | 372.05 | 370.90 | 1256.3 | 14.28 | 1.455 | 0.864 | 168.2 | 415.7 | 0.945 | 1.932 |
| -20 | 401.34 | 400.06 | 1249.2 | 15.37 | 1.461 | 0.875 | 171.1 | 416.6 | 0.957 | 1.927 |
| -18 | 432.36 | 430.95 | 1242.0 | 16.52 | 1.468 | 0.886 | 174.1 | 417.4 | 0.968 | 1.923 |
| -16 | 465.20 | 463.64 | 1234.8 | 17.74 | 1.476 | 0.897 | 177.0 | 418.2 | 0.980 | 1.919 |
| -14 | 499.91 | 498.20 | 1227.5 | 19.04 | 1.483 | 0.909 | 180.0 | 419.0 | 0.991 | 1.914 |
| -12 | 536.58 | 534.69 | 1220.0 | 20.41 | 1.491 | 0.921 | 182.9 | 419.8 | 1.003 | 1.910 |
| -10 | 575.26 | 573.20 | 1212.5 | 21.86 | 1.499 | 0.933 | 185.9 | 420.5 | 1.014 | 1.906 |
| -8 | 616.03 | 613.78 | 1204.9 | 23.39 | 1.507 | 0.947 | 189.0 | 421.2 | 1.025 | 1.902 |
| -6 | 658.97 | 656.52 | 1197.2 | 25.01 | 1.516 | 0.960 | 192.0 | 421.9 | 1.036 | 1.898 |
| -4 | 704.15 | 701.49 | 1189.4 | 26.72 | 1.524 | 0.975 | 195.0 | 422.6 | 1.048 | 1.894 |
| -2 | 751.64 | 748.76 | 1181.4 | 28.53 | 1.533 | 0.990 | 198.1 | 423.2 | 1.059 | 1.890 |
| 0 | 801.52 | 798.41 | 1173.4 | 30.44 | 1.543 | 1.005 | 201.2 | 423.8 | 1.070 | 1.886 |
| 2 | 853.87 | 850.52 | 1165.3 | 32.46 | 1.552 | 1.022 | 204.3 | 424.4 | 1.081 | 1.882 |
| 4 | 908.77 | 905.16 | 1157.0 | 34.59 | 1.563 | 1.039 | 207.4 | 424.9 | 1.092 | 1.878 |
| 6 | 966.29 | 962.42 | 1148.6 | 36.83 | 1.573 | 1.057 | 210.5 | 425.5 | 1.103 | 1.874 |
| 8 | 1026.5 | 1022.4 | 1140.0 | 39.21 | 1.584 | 1.076 | 213.7 | 425.9 | 1.114 | 1.870 |
| 10 | 1089.5 | 1085.1 | 1131.3 | 41.71 | 1.596 | 1.096 | 216.8 | 426.4 | 1.125 | 1.866 |
| 12 | 1155.4 | 1160.7 | 1122.5 | 44.35 | 1.608 | 1.117 | 220.0 | 426.8 | 1.136 | 1.862 |
| 14 | 1224.3 | 1219.2 | 1113.5 | 47.14 | 1.621 | 1.139 | 223.2 | 427.2 | 1.147 | 1.859 |
| 16 | 1296.2 | 1290.8 | 1104.4 | 50.09 | 1.635 | 1.163 | 226.5 | 427.5 | 1.158 | 1.855 |
| 18 | 1371.2 | 1365.5 | 1095.1 | 53.20 | 1.650 | 1.188 | 229.7 | 427.8 | 1.169 | 1.851 |
| 20 | 1449.4 | 1443.4 | 1085.6 | 56.48 | 1.666 | 1.215 | 233.0 | 428.1 | 1.180 | 1.847 |
| 22 | 1530.9 | 1524.6 | 1075.9 | 59.96 | 1.683 | 1.243 | 236.4 | 428.3 | 1.191 | 1.843 |
| 24 | 1615.8 | 1609.2 | 1066.0 | 63.63 | 1.701 | 1.273 | 239.7 | 428.4 | 1.202 | 1.839 |
| 26 | 1704.2 | 1697.2 | 1055.9 | 67.51 | 1.721 | 1.306 | 243.1 | 428.6 | 1.214 | 1.834 |
| 28 | 1796.2 | 1788.9 | 1045.5 | 71.62 | 1.743 | 1.341 | 246.5 | 428.6 | 1.225 | 1.830 |
| 30 | 1891.9 | 1884.2 | 1034.9 | 75.97 | 1.767 | 1.379 | 249.9 | 428.6 | 1.236 | 1.826 |
| 32 | 1991.3 | 1983.2 | 1024.1 | 80.58 | 1.793 | 1.420 | 253.4 | 428.6 | 1.247 | 1.822 |
| 34 | 2094.5 | 2086.2 | 1012.9 | 85.48 | 1.822 | 1.465 | 256.9 | 428.4 | 1.258 | 1.817 |
| 36 | 2201.7 | 2193.1 | 1001.4 | 90.68 | 1.855 | 1.514 | 260.5 | 428.3 | 1.269 | 1.813 |
| 38 | 2313.0 | 2304.0 | 989.5 | 96.22 | 1.891 | 1.569 | 264.1 | 428.0 | 1.281 | 1.808 |
| 40 | 2428.4 | 2419.2 | 977.3 | 102.1 | 1.932 | 1.629 | 267.8 | 427.7 | 1.292 | 1.803 |
| 42 | 2548.1 | 2538.6 | 964.6 | 108.4 | 1.979 | 1.696 | 271.5 | 427.2 | 1.303 | 1.798 |
| 44 | 2672.2 | 2662.4 | 951.4 | 115.2 | 2.033 | 1.771 | 275.3 | 426.7 | 1.315 | 1.793 |
| 46 | 2800.7 | 2790.7 | 937.7 | 122.4 | 2.095 | 1.857 | 279.2 | 426.1 | 1.327 | 1.788 |
| 48 | 2933.7 | 2923.6 | 923.3 | 130.2 | 2.168 | 1.955 | 283.2 | 425.4 | 1.339 | 1.782 |
| 50 | 3071.5 | 3061.2 | 908.2 | 138.6 | 2.256 | 2.069 | 287.3 | 424.5 | 1.351 | 1.776 |
| 52 | 3214.0 | 3203.6 | 892.2 | 147.7 | 2.362 | 2.203 | 291.5 | 423.5 | 1.363 | 1.770 |
| 54 | 3361.4 | 3351.0 | 876.1 | 157.6 | 2.493 | 2.363 | 295.8 | 422.4 | 1.376 | 1.764 |
| 56 | 3513.8 | 3503.5 | 856.8 | 168.4 | 2.661 | 2.557 | 300.3 | 421.0 | 1.389 | 1.757 |
| 58 | 3671.3 | 3061.2 | 836.9 | 180.4 | 2.883 | 2.799 | 305.0 | 419.4 | 1.403 | 1.749 |
| 60 | 3834.1 | 3824.2 | 814.9 | 193.7 | 3.191 | 3.106 | 310.0 | 417.6 | 1.417 | 1.741 |
| 62 | 4002.1 | 3992.7 | 790.1 | 208.6 | 3.650 | 3.511 | 315.3 | 415.5 | 1.433 | 1.732 |
| 64 | 4175.7 | 4166.8 | 761.0 | 225.6 | 4.415 | 4.064 | 321.2 | 413.0 | 1.450 | 1.722 |

# 1.2 Refrigerant Cylinders

- Cylinder specifications
  - The cylinder is painted refrigerant color (pink).
  - The cylinder valve is equipped with a siphon tube.




Refrigerant can be charged in liquid state with cylinder in upright position.

Caution: Do not lay cylinder on its side during charging, since it cause refrigerant in gas state to enter the system.

- Handling of cylinders

(1) Laws and regulations
R410A is liquefied gas, and the High-Pressure Gas Safety Law must be observed in handling them. Before using, refer to the High-Pressure Gas Safety Law.
The Law stipulates standards and regulations that must be followed to prevent accidents with high-pressure gases. Be sure to follow the regulations.

(2) Handing of vessels
Since R410A is high-pressure gas, it is contained in high-pressure vessels.
Although those vessels are durable and strong, careless handling can cause damage that can lead to unexpected accidents. Do not drop vessels, let them fall, apply impact or roll them on the ground.

(3) Storage
Although R410A is not flammable, it must be stored in a well-ventilated, cool, and dark place in the same way as any other high-pressure gases.
It should also be noted that high-pressure vessels are equipped with safety devices that releases gas when the ambient temperature reaches more than a certain level (fusible plug melts) and when the pressure exceeds a certain level (spring-type safety valve operates).

# 1.3 Service Tools

R410A is used under higher working pressure, compared to previous refrigerants (R22,R407C). Furthermore, the refrigerating machine oil has been changed from Suniso oil to Ether oil, and if oil mixing is occurred, sludge results in the refrigerants and causes other problems. Therefore, gauge manifolds and charge hoses that are used with a previous refrigerant (R22,R407C) can not be used for products that use new refrigerants.
Be sure to use dedicated tools and devices.

■ Tool compatibility

| Tool | Compatibility | | | Reasons for change |
|---|---|---|---|---|
| | HFC | | HCFC | |
| | R410A | R407C | R22 | |
| Gauge manifold<br>Charge hose | × | | | • Do not use the same tools for R22 and R410A.<br>• Thread specification differs for R410A and R407C. |
| Charging cylinder | × | | O | • Weighting instrument used for HFCs. |
| Gas detector | O | | × | • The same tool can be used for HFCs. |
| Vacuum pump<br>(pump with reverse flow preventive function) | O | | | • To use existing pump for HFCs, vacuum pump adapter must be installed. |
| Weighting instrument | O | | | |
| Charge mouthpiece | × | | | • Seal material is different between R22 and HFCs.<br>• Thread specification is different between R410A and others. |
| Flaring tool (Clutch type) | O | | | • For R410A, flare gauge is necessary. |
| Torque wrench | O | | | • Torque-up for 1/2 and 5/8 |
| Pipe cutter | O | | | |
| Pipe expander | O | | | |
| Pipe bender | O | | | |
| Pipe assembling oil | × | | | • Due to refrigerating machine oil change. (No Suniso oil can be used.) |
| Refrigerant recovery device | Check your recovery device. | | | |
| Refrigerant piping | See the chart below. | | | • Only $\phi$19.1 is changed to 1/2H material while the previous material is "O". |

As for the charge mouthpiece and packing, 1/2UNF20 is necessary for mouthpiece size of charge hose.

■ Copper tube material and thickness

| Pipe size | Ve-up | | Ve-upII | |
|---|---|---|---|---|
| | R407C | | R410A | |
| | Material | Thickness t (mm) | Material | Thickness t (mm) |
| $\phi$6.4 | O | 0.8 | O | 0.8 |
| $\phi$9.5 | O | 0.8 | O | 0.8 |
| $\phi$12.7 | O | 0.8 | O | 0.8 |
| $\phi$15.9 | O | 1.0 | O | 1.0 |
| $\phi$19.1 | O | 1.0 | 1/2H | 1.0 |
| $\phi$22.2 | 1/2H | 1.0 | 1/2H | 1.0 |
| $\phi$25.4 | 1/2H | 1.0 | 1/2H | 1.0 |
| $\phi$28.6 | 1/2H | 1.0 | 1/2H | 1.0 |
| $\phi$31.8 | 1/2H | 1.2 | 1/2H | 1.1 |
| $\phi$38.1 | 1/2H | 1.4 | 1/2H | 1.4 |
| $\phi$44.5 | 1/2H | 1.6 | 1/2H | 1.6 |

* O: Soft (Annealed)
H: Hard (Drawn)

## 1. Flaring tool



Flare gauge



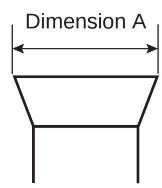



- Specifications
- Dimension A

Unit:mm

| Nominal size | Tube O.D. | $A^{+0}_{-0.4}$ | |
|---|---|---|---|
| | Do | Class-2 (R410A) | Class-1 (Conventional) |
| 1/4 | 6.35 | 9.1 | 9.0 |
| 3/8 | 9.52 | 13.2 | 13.0 |
| 1/2 | 12.70 | 16.6 | 16.2 |
| 5/8 | 15.88 | 19.7 | 19.4 |
| 3/4 | 19.05 | 24.0 | 23.3 |

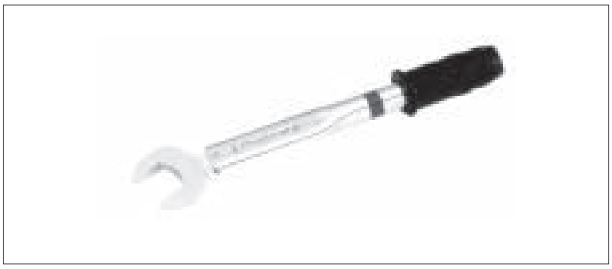
- Differences
- Change of dimension A




For class-1: R407C
For class-2: R410A

Conventional flaring tools can be used when the work process is changed.
(change of work process)
Previously, a pipe extension margin of 0 to 0.5mm was provided for flaring. For R410A air conditioners, perform pipe flaring with a pipe extension margin of 1.0 to 1.5mm.
(For clutch type only)
Conventional tool with pipe extension margin adjustment can be used.

### 2. Torque wrench

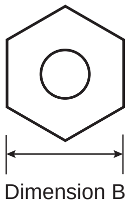


■ Specifications
- Dimension B Unit:mm

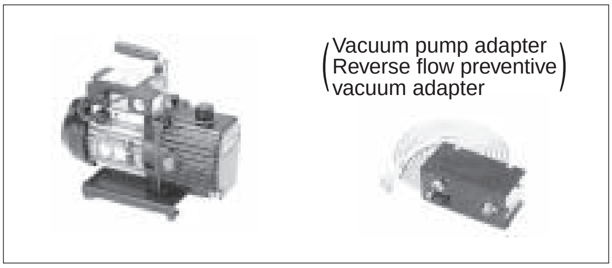
| Nominal size | Class-1 | Class-2 | Previous |
|---|---|---|---|
| 1/2 | 24 | 26 | 24 |
| 5/8 | 27 | 29 | 27 |

No change in tightening torque
No change in pipes of other sizes

■ Differences
- Change of dimension B
  Only 1/2", 5/8" are extended




### 3. Vacuum pump with check valve




■ Specifications
- Discharge speed
  50 l/min (50Hz)
  60 l/min (60Hz)
- Suspicion port UNF7/16-20(1/4 Flare)
  UNF1/2-20(5/16 Flare) with adapter

● Maximum degree of vacuum
  –100.7 kpa ( 5 torr – 755 mmHg)

■ Differences
- Equipped with function to prevent reverse oil flow
- Previous vacuum pump can be used by installing adapter.

**4. Leak tester**



- ■ Specifications
- Hydrogen detecting type, etc.
- Applicable refrigerants
  R410A, R407C, R404A, R507A, R134a, etc.

- ■ Differences
- Previous testers detected chlorine. Since HFCs do not contain chlorine, new tester detects hydrogen.

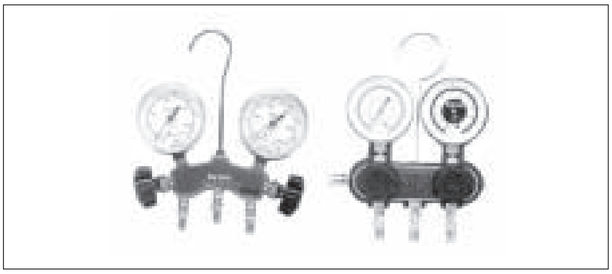
**5. Refrigerant oil (Air compal)**



- ■ Specifications
- Contains synthetic oil, therefore it can be used for piping work of every refrigerant cycle.
- Offers high rust resistance and stability over long period of time.

- ■ Differences
- Can be used for R410A and R22 units.

**6. Gauge manifold for R410A**



- ■ Specifications
- High pressure gauge
  - 0.1 to 5.3 MPa (-76 cmHg to 53 kg/cm$^2$)
- Low pressure gauge
  - 0.1 to 3.8 MPa (-76 cmHg to 38 kg/cm$^2$)
- 1/4" → 5/16" (2min → 2.5min)
- No oil is used in pressure test of gauges.
  → For prevention of contamination

- Temperature scale indicates the relationship between pressure and temperature in gas saturated state.

■ Differences
- Change in pressure
- Change in service port diameter

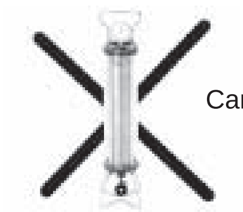
**7. Charge hose for R410A**


(Hose with ball valve)

■ Specifications
- Working pressure 5.08 MPa (51.8 kg/cm$^2$)
- Rupture pressure 25.4 MPa (259 kg/cm$^2$)
- Available with and without hand-operate valve that prevents refrigerant from outflow.

■ Differences
- Pressure proof hose
- Change in service port diameter
- Use of nylon coated material for HFC resistance

**8. Charging cylinder**


Can not be used

■ Specifications
- Use weigher for refrigerant charge listed below to charge directly from refrigerant cylinder.

■ Differences
- The cylinder can not be used for mixed refrigerant since mixing ratio is changed during charging.

  When R410A is charged in liquid state using charging cylinder, foaming phenomenon is generated inside charging cylinder.

### 9. Weigher for refrigerant charge



- Specifications
- High accuracy
  TA101A (for 10-kg cylinder) = ± 2g
  TA101B (for 20-kg cylinder) = ± 5g
- Equipped with pressure-resistant sight glass to check liquid refrigerant charging.
- A manifold with separate ports for HFCs and previous refrigerants is equipped as standard accessories.

- Differences
- Measurement is based on weight to prevent change of mixing ratio during charging.

### 10. Charge mouthpiece



- Specifications
- For R410A, 1/4"→ 5/16" (2min → 2.5min)
- Material is changed from CR to H-NBR.

- Differences
- Change of thread specification on hose connection side (For the R410A use)
- Change of sealer material for the HFCs use.

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# Drawings & Flow Charts

In all of us,
a green heart

Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intension to become a leader in the provision of products that have limited impact on the environment. This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.

Daikin Europe N.V. is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard. ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.

ISO14001 assures an effective environmental management system in order to help protect human health and the environment from the potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.

Daikin units comply with the European regulations that guarantee the safety of the product.

VRV products are not within the scope of the Eurovent certification programme.



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